BY THE EDITORS OF CONSUMER GUIDE®

HOW TO WIN AT

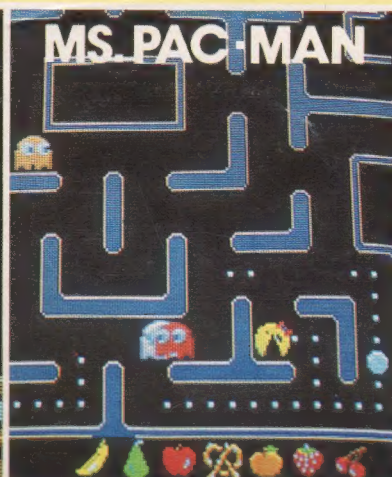# VIDEO GAMES

COMPLETE STRATEGIES FOR TOP ARCADE GAMES

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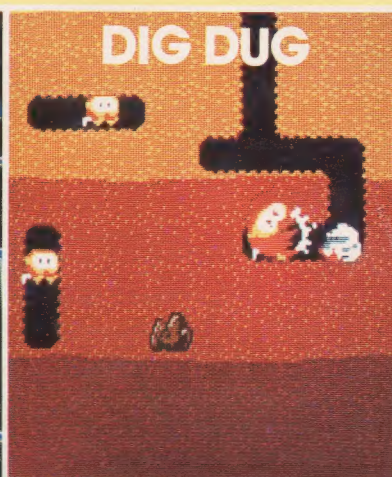
DIG DUG

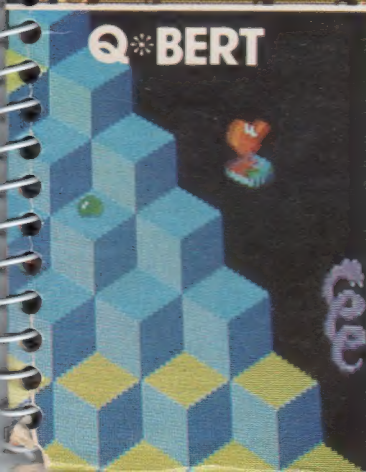SINISTAR

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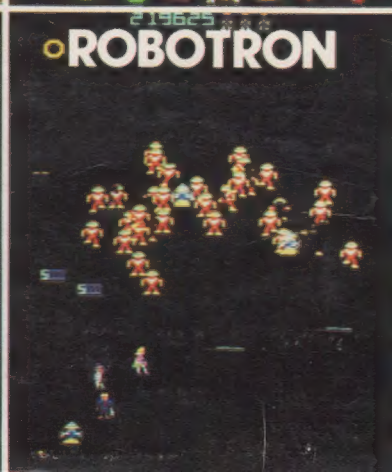
DONKEY KONG, JR.

HIGH-SCORE STRATEGIES

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How To Win At
VIDEO GAMES

COMPLETE STRATEGIES FOR TOP ARCADE GAMES

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DIG DUG

Whether or not they'll admit it, enough arcaders play Dig Dug regularly to make it a contemporary classic. The hero of the game, a small, white, burrowing robot, has collected a widespread following with his valiant attempts in protecting his vegetable garden from two varieties of underground pests: Pookas and Fygars. Dig Dug's popularity is a result of many proven mass-appeal game elements — a relaxed playing pace, simple controls, pleasant background music and a nonviolent theme.

The burrowing Pookas (tomatoes with yellow sunglasses) are the less dangerous of Dig Dug's two adversaries. Pookas can be destroyed by either pumping them so full of air that they explode, or dropping rocks on their heads. A Pooka is worth anywhere from 100 to 500 points when exploded, depending on the depth at which he is caught. Dropping a rock on Pookas makes them even more valuable—one is worth 1000 points, two at a time nets 2500, and a third crushed Pooka will bring a whopping 4000-point bonus.

Fygars are green dragons that can burn Dig Dug to a crisp with a single searing breath. They can be destroyed in the same manner as Pookas, and are worth the same number of points. A Fygar's flame can pass through up to two thin walls of dirt, so be very careful when one looks in Dig Dug's direction. Fygars can only blow flames in the direction they're facing.

After dropping the second rock during a single board, a vegetable will appear in the center of the field, and remain on the screen for ten seconds. These can be devoured when passing over them. First a 400-point carrot appears, and then turnips, mushrooms, cucumbers, and a 2000-point purple squash. The last prize, an 8000-point pineapple,
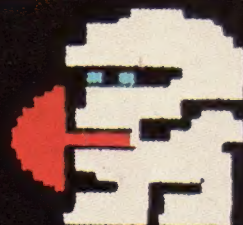
appears in round 18 and all following rounds. Nabbing these treats is important, even if it means allowing the last monster to escape from the screen.

The rocks in Dig Dug have little more than a functional value. No points are scored for un-earthing one, but clearing out an area under a rock will cause it to drop and crush everything in its path—even Dig Dug him-self. So, when setting a trap for unsuspecting Pookas and Fygars, move aside once the rock is free to fall.

All of the characters start out in their own caves, and Dig Dug is the only one that can enlarge his. Although Pookas and Fygars can travel through virgin dirt as a disembodied pair of eyes, they prefer to move through the caves. By building a cleverly shaped cave you can lure them to certain destruc-tion.

The four-position joy-stick allows Dig Dug to burrow in four directions. If the handle is released, Dig Dug will stop moving. But even moving at full speed won't allow Dig Dug to outrun Pookas or Fygars.

Nor does the joystick allow fine control of Dig Dug's movements. There are really only a limited number of paths on the board that Dig Dug can follow; he is traveling on a 15 x 15 lattice of tracks covered by dirt.

The pump button is similar to the fire button on other games, with several limitations built in. First, the pumping mechanism is aimed only in the direction Dig Dug is moving. To attack a monster behind you, you must turn around. Also, it takes several pumps to explode a Pooka or Fygar. And, the pump hose has a limited length, so get close before trying to use it. Finally, since Dig Dug cannot move with the pump inside a monster, he is easy prey. To speed up the process, hit the button repeatedly instead of holding it down, while moving toward your target. With this speedy technique, you can fend off three or four monsters at a time. If you stop pumping too soon, the monster will deflate and survive.

Dig Dug can surprise un-suspecting Pookas and Fygars by shooting them through thin walls of dirt. The monsters can't move through the walls, so it is relatively safe—relatively safe because a Fygar can still torch you through a thin wall.

DIG DUG

POOKAS
100 - 4000 points

FYGARS
100 - 4000 points

ROCKS

**FLOWERS**

PRIZES
400 - 8000 points

Good scores on Dig Dug are achieved with the use of patterns and the knowledge of a few tricks for narrow escapes. The Dig Dug character is a tough little guy, but going against eight enemy Pookas and Fygars can be rough. By using good patterns, you can crush several foes with one rock, giving you maximum points and a better chance to deal with surviving monsters. Round 1 pits Dig Dug against four monsters. On succeeding rounds, the number of monsters increases to a maximum of eight. Rounds 1 through 11 are all different and will only appear once. Beginning on round 12, a cycle of four patterns repeats indefinitely.

Mastering these four patterns will enable you to score into the millions. The strategy for all four patterns is similar. Immediately head for a rock and drop it on a group of monsters, leaving a reasonable number of them to contend with. In order to choose the proper pattern, you need to know which round you're working on. The round number is always displayed in two different ways. It appears as a number at the bottom of the screen (lower right corner), and it also corresponds to the number of flowers in the upper right corner of the screen. The large flowers represent ten rounds each, and the small flowers represent one round.
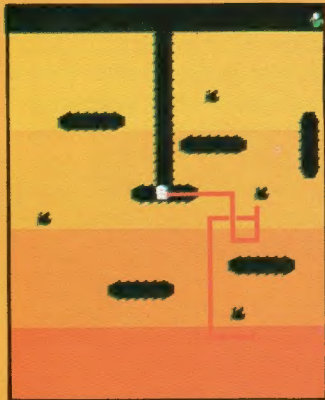
Rounds 12 to 32, 40, 44
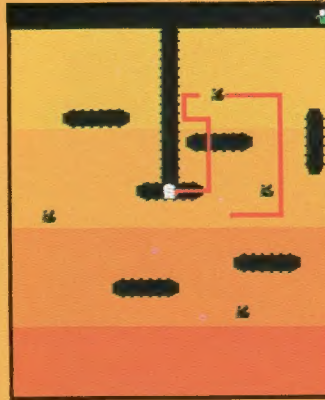
Rounds 36, 48 and beyond
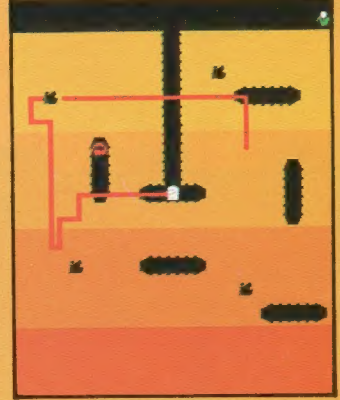
Rounds 13, 17, 21, etc.

ROUND 12 AND UP
Round 12 is the beginning of the cycle of the four screens. Pattern 1 works on rounds 12-32, and also on 40 and 44. Begin by going straight over to the rock. Turn down two squares, then left up to the rock. Turn around and stun the Pooka under the rock to make sure the rock hits him. The rock will also flatten the two Fygars below. Go down to the lower rock, wait for a couple more monsters and drop the second rock on them to make the vegetable appear. If the monsters are too close behind you after the first rock drops, go to the upper rock instead. On round 36, switch to pattern 2. Move under the two Pookas, leaving a thin wall. Shoot them quickly and drop the rock on the monsters below. The three remaining ones pose no problem. Remember to use pattern 1 on rounds 40 and 44 and switch back to pattern 2 on rounds 48 and higher.

ROUND 13 AND UP
This is the easiest of the four screens to master. The same basic pattern works on round 13 and every fourth screen afterwards. Head straight to the left, entering the bottom of the Pooka's tunnel. Pump him up and go over below the high rock. Dig a small pit and go up to the rock. Wait for as many monsters as possible to move under the rock before dropping it. Always drop it by moving left to keep the monsters trapped in the pit. On higher rounds, the monsters will turn to ghosts at the bottom of the pit and try to follow you to the left. Just move back to the right and they will move back under the falling rock. The only problem with this pattern is that it works too well. You have to be careful not to kill all of the monsters with the rock so you can still get the pineapple. Sometimes you will have to allow a ghost to escape from the pit by staying to the left.
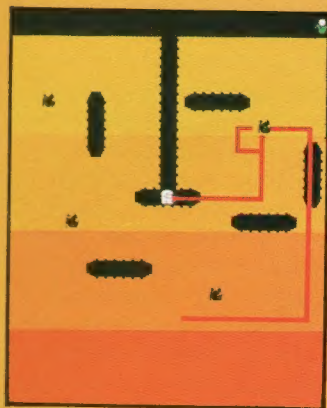
Rounds 14 to 30
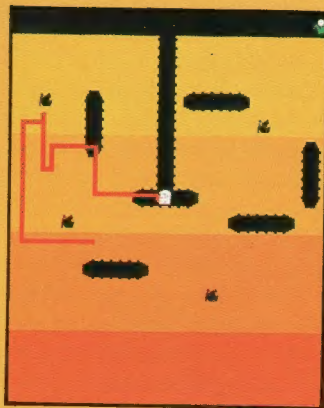
Round 34 and beyond
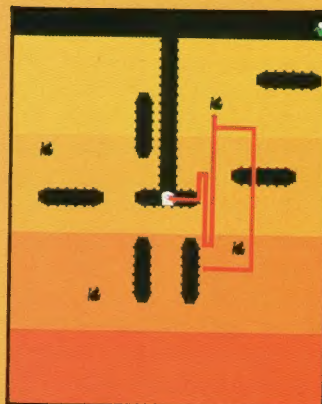
Rounds 15 to 31
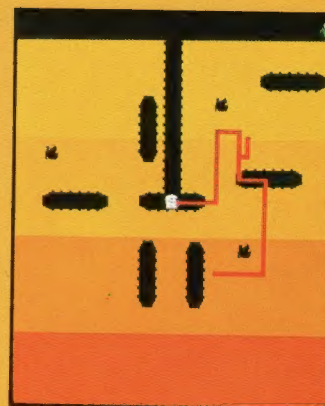
Round 35 and beyond

ROUND 14 AND UP

The monsters form a circle around you in this pattern making it difficult to get to the rocks in later rounds. For this screen in rounds 14-30, use pattern 1. Go straight across and then up to the rock and wait. Drop the rock so it will get the Pooka ghost coming from the right tunnel and also get the Fygar in the tunnel below. The remaining monsters will all be spread out so they can't gang up on you. Beginning at round 34, switch to pattern 2. This time go to the left and up to the two monsters in their tunnel. Don't go in, just leave a thin wall to shoot through. Shoot them both and go over under the rock. Make a small pit to get the two Fygar ghosts coming from below. Shoot the remaining monsters along the left column until you can go get the fruit.

ROUND 15 AND UP

This pattern requires some quick shooting, but not much moving around. At the start, wait for the Pooka ghost to come at you from the right and quickly shoot him. Move straight over under the rock. Until round 35, you have time to dig a pit down to the lower rock. Shoot the two Pookas that follow then go up and drop the rock. Beginning at round 35, forget about digging the pit and immediately go up the rock. Drop it without hesitation by going to the right, then turn down right away. A Pooka will be right behind you, so quickly turn around and kill him. Three Fygars should be left. Try to get two of them with another rock and get the pineapple while the last one tries to escape.

DONKEY KONG, JR.

In the tradition of a great Norman Lear comedy spin-off, one of the most popular video games— Donkey Kong—has spawned an equally popular sequel—Donkey Kong, Jr. And in spite of the common themes of the games, Donkey Kong, Jr. adds new challenges to the original concept.

The similarities between Junior and Papa Kong are great—as are the differences. Two of the characters remain intact: Mario and Donkey Kong. You're no longer in a construction site but, instead, in the jungle. Your objective is reminiscent of the original game: Save Papa Kong from the clutches of Mario. The monkey doing the saving is you, Junior, the proud son of Kong. Mario has locked Papa in a cage at the top of the screen.

The road to rescue is hazardous and varied. Vines replace the ramps and ladders as the passageways to the top. As in the original, there are four distinct boards of play, each appearing in a planned sequence. If we call the Vines setting A, the Chains B, the Jumpboard C, and the Hideout D, the first order of screen progression—as in the original Donkey Kong—is ABACBAD.

Junior's answer to the ramps is the Vine Screen. Kong is captive in his cage on top, and you're ready to go at the bottom. You must swing from vine to vine to get to Papa. Your enemies are the Snapjaws, looking just like they sound. The blue ones slither down the vines and then out of the game. The red Snapjaws move up and down the vines, remaining until squashed by your fruit. Wait until your enemy is underneath a fruit, and then nudge it loose with Junior himself. The fruit will then drop, killing your adversary.

The Chains screen is similar to the Rivet screen in the original. Each chain has a lock at the top of it. You must push keys up chains to force them into locks. Your enemies on this board are the Snapjaws and Nitpickers. The only Snapjaws are the red ones; they move down and up the chains. The deadly Nitpickers are video birds that move across the screen, descending in zigzag fashion.

Once you've opened all the locks, the whole gizmo comes tumbling down and your first intermission is awarded. You can climb up two vines at once, speeding up the process. Also, the chains at the edges are the most dangerous.

The Junior version of the Elevator screen is the Jumpboard. You use a Springese (pogo stick) as a jumpboard. The screen is broken horizontally into two parts. You can spring from the jumpboard up to one of the moving vines, hold onto it and climb to the top part of the screen. The only obstacles are the eggs dropped by the Nitpickers.

Mario, as you remember from the original game, is a carpenter. Now he's taken up his craft in a video sewer, complete with sound effects, in the Hideout screen. A new enemy, the Sparks, are introduced in Mario's lair. These travel individually about the pipes with fully charged electrical power. You must avoid them, or kill them with fruit that hangs off the plumbing fixtures.

JUNIOR

DONKEY KONG

MARIO

SNAPJAWS
800 - 1600 points

NITPICKERS
800 - 1600 points

SPARKS
800 - 1600 points

FRUITS
400 points

9

Killing a Snapjaw.

On the Vines screen there are only two things that Junior must avoid doing at all costs: touching Snapjaws or falling too far. Both result in the loss of a turn. Junior is controlled with a jump button and a four-direction joystick. He begins the screen at the lower left. Jump him to one of the two vines directly overhead. Using two vines, one in each hand, is the fastest way to climb and using one vine (with both hands) is the fastest way to descend. Climb Junior quickly up the first two vines until he is next to the coconuts, then time the coconuts so that they hit the red Snapjaw on one of the ledges below.

Beginning with level 2 there is a second red Snapjaw on top. Wait until it's on the same vine as the coconuts before dropping any. With level 3 all red Snapjaws regenerate after being killed and appear on the upper left portion of the board. They are confined to the left side of the screen until Junior gets off the board or dies.

After dropping the coconuts, move Junior back and forth across the upper ledge to entice a blue Snapjaw down

the vine. Wait until the Snapjaw is below the apple and run to the edge and jump at the last second. The apple will crush the blue Snapjaw below. Get back off onto the lower of the two ledges to the left and wait until a blue Snapjaw goes down the vine with the bananas. When you see this, swing Junior back out onto the vine he just left, lower him until he's even with the bananas and wait until the blue Snapjaw is just below. Junior's arm is long enough to span the space and knock the bananas loose, crushing the Snapjaws just below. This plan works well on level 2 and beyond. Wait above the bananas on the first level.

After the bananas, lower Junior to the platform below, grab the vine above and climb to the coconuts. Be sure to kill at least the blue Snapjaw. Swing to the right and climb Junior up the last two vines. Any red Snapjaws at the top should be on their way down before you get off at the top level. Jump any blue Snapjaws, move to the left, and then jump up the step and grab the vine with the last apple on it. Wait until any red Snapjaws are on the vine just to the right of the step below. Swing Junior toward Mario and wait for one last blue Snapjaw to pass below before dropping the apple. The apple will kill the blue Snapjaw and any red ones on the vine. If Junior still is not facing Mario when the apple reaches the red Snapjaws, they will live.

After all the Snapjaws have been hit, swing back around and drop off the vine. Move to the left and jump to grab the first vine to complete the screen.
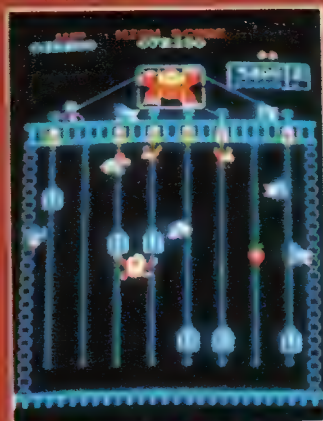
Pushing two keys into place.

The Chains screen is made up of eight long chains of equal length. At the end of six of them there is a key which must be pushed to the top to finish the screen and release Kong.

Junior is at the lower left at the beginning. Move him to the right and jump to grab the third chain from the left. Spread his arms so that he's grabbing both the third and fourth chains from the left. Push the two keys to the top, watching for any red Snapjaws coming down the vines.

On this screen, the blue Snapjaws are replaced with dark blue Nitpickers. They enter from the right and cross the screen four times before exiting on the left. On level 1 Junior is safe standing at the bottom since the birds won't come down that far, but on higher levels the Nitpickers fly lower. Staying up in the chains is the way to survive here.

Once the two keys are in place, get onto the chain at the lower left with the apple on it. Lower Junior until he's just above this apple. The first bird to enter the playing field should be coming and will be low enough to kill.

The first bird on the higher levels cannot be killed like this. Here the first two keys should be left about one inch below the locks, and any red Snapjaws on the chain with the apple on it should be killed quickly. After using this apple, walk along the bottom (for level 1) or swing across the chains towards the right to the next two middle keys, saving the end keys for last. Watch for Nitpickers and Snapjaws while pushing the keys up.

Some Nitpickers enter lower than others, so position Junior just below the level of the lowest bird. With all the keys in the middle in place, get to the right chain with the other apple on it. Wait above the apple, and when a low Nitpicker comes by, slide down the chain and smash any Nitpickers, Snapjaws or birds below. Now get the two end keys to the top, starting with the one on the right.

Jump onto the small platform.

The next screen has a jumpboard just to the right of where Junior begins at the lower left. Move Junior to the right edge of the platform where he starts. Count to two and jump onto the jumpboard. For a super-high leap, hit the jump button as fast as possible, as if it were a fire button. Junior should land on the horizontally moving ledge in the middle of the screen. Once there, wait for the overhead rod that changes length to lower and make a jump for it. Junior will be carried to a platform to the left just above where he started. From here, jump to grab a rope and climb.

On this screen Nitpickers fly out from the top left, but cross the screen only once. When a low one appears, drop the first fruit on it. Avoid the birds until a second low one comes and drop the next fruit on it. Wait at the top of the second rope to the left of the gap for one high Nitpicker to come at Junior, then slide down the rope nearly to the end and change to the next rope, dropping the coconuts. Wait for another Nitpicker to come out of the gap and turn high before continuing to the right. Get to the top level and jump the gap. Drop the apple on a Nitpicker and lower Junior back down to the top level.

For level 2, jump one Nitpicker and jump for the next rope to the left. Wait for a wide gap in the Nitpickers before dropping to their level. Jump them one at a time by jumping straight up. After landing each time, edge barely forward to the left. Three jumps should put Junior close enough to jump and grab the rope to end the screen.
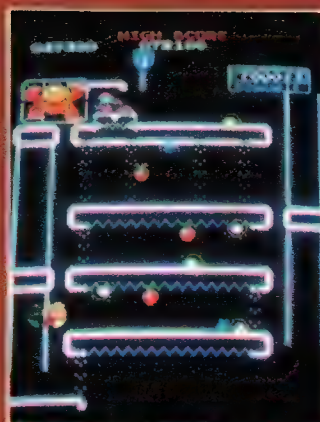
Destroying the Sparks.

Mario's Hideout first appears on level 3. Although patterns with very little variation can be used for this screen, most players find a pattern unnecessary for the level 3 Hideout. The following pattern works on level 4 and all levels beyond.

Again at the lower left of the screen, jump Junior and grab both pipes overhead. Climb until he is even with the large pipes to the right. Get onto these pipes and move right. Press the jump button so that Junior will knock the apple loose at the height of his jump. Continue to the right without stopping. Climb up the two pipes to the extreme right (as you did when beginning the screen) and get off at the next level. Run to the apple, jumping anything that may be coming, and wait.

There is a yellow Spark circling the pipes above, coming toward Junior. Just before it reaches the apple, jump so that the apple will fall when the Spark is directly overhead to eliminate it. The apple will drop, missing the Spark just under Junior and will continue down and hit another lower Spark.

If after jumping to get the apple you push the joystick to the right while Junior is in the air, you will receive 1200 points for the first Spark instead of just 800. Continue to the left and up to the next level. Use this apple to get any other possible Sparks. Continue to the right and climb Junior up the pipes until he's even with the highest level. Wait for a blue Spark to intersect with a yellow one at the right end of the top level just below where Junior is waiting. Just after this happens, get onto the top level, move left, and grab the last pipe.

GALAGA

Galaga is the sequel to
Galaxian, an early
coin-op hit, and it has
been one of the ten
most-played games in
the country for over a
year. It is a simple and
colorful game with good
graphics and sound, and
it offers the player more
firepower than almost
any other game by use of
the doubleship (de-
scribed below).

The basic objective of
Galaga is to shoot
swarms of deadly bugs
that enter from the bot-
tom of the screen and
then attack from a forma-
tion at the top. You con-
trol a small spaceship
that can move back and
forth across the bottom
of the screen and fire
straight up at the
enemies.

The controls are the
same as Galaxian. A joy-
stick moves your ship
across the screen, and a
button is used to fire
shots. The fire button has
rapid-fire capability, so
you can hold it down for
automatic firing. Only
two shots can be on the
screen at one time, how-
ever, so it's better to fire
manually and conserve
your firepower.

The enemy bugs fly onto the screen from below in groups of six to ten. Each group of bugs circles around the screen for a second and then comes to rest at the top. After enough bugs have entered to fill the formation at the top of the screen, they begin peeling off individually and in groups to attack your ship. Your goal is to eliminate all of the bugs on the screen, at which point more groups of bugs will come out and build the formation again. Each formation of bugs is called a Stage.

There are three kinds of enemy bugs. Since they don't have names, we'll just call them blue bugs, red bugs, and flagships.

Blue bugs make up the bottom two rows of the formation. They usually move in a circle when they drop down to attack, and after completing a circle they will pass through the bottom of the screen and return through the top.

Red bugs move towards you in a large sweeping curve, and don't circle back up like the blue bugs. They make up the third and fourth rows of the formation.

Both blue bugs and red bugs fire at your ship. They fire shortly after leaving the formation, and their shots are always aimed directly at your ship if it is in the center part of the screen. The shots don't change course once they're out,

so keep moving to avoid them.

Flagships are the largest bugs. They always go to the top row of the formation, and they are not as aggressive as your other enemies. Red bugs and blue bugs can be eliminated with a single shot, but flagships must be shot twice. After the first shot they glow light blue, so you can easily tell whether the next hit will destroy a flagship.

Occasionally a flagship will do something very strange. After leaving the formation, it will circle downward to a point directly above where your ship was when the flagship began moving. Then, instead of continuing down and off the screen, it will stop and radiate downward a fan-shaped beam of light. This beam only lasts a few seconds, and then the flagship retracts it and drops through the bottom of the screen.

If you move your ship into the flagship's beam before it retracts, your fighter will be captured. It will begin spinning and move slowly up to the flagship, which will then tow it back to the top of the screen. If you were on your last turn the game is over, but if you have another turn in reserve you will begin playing with it while your previous fighter is trapped at the top of the screen.

Your goal now is to free the captured fighter. To do this, you must shoot

the flagship while it is moving out of formation with the fighter in tow. Be careful not to hit the captured fighter; it is worth 1000 points, but it is much more valuable if you can free it. Once the captured fighter is freed, it will drop down and bind to the side of your ship. Both fighters then move and fire in unison—this is the Galaga doubleship.

Because both ships fire simultaneously, the doubleship gives you tremendous firepower. Although it is a bigger target—and therefore a bigger liability—than a single ship, this is more than made up for by the increased firepower. Most players find that it is best to use the doubleship whenever possible, because it allows you to finish the stages quickly and safely. If a bullet hits one half of the doubleship, the other half will not be harmed, and you simply revert back to single ship play.

The doubleship is especially useful during the Challenging Stages. Challenging Stages are stages where the bugs just come onto the screen in small groups and perform some aerial acrobatics before flying away. They don't fire or fly off the bottom of the screen, and your objective is simply to shoot as many of them as possible before they leave. With the doubleship, you can usually get all of the bugs in a Challenging Stage, and this will earn you a 10,000-point bonus.

PLAYER SHIP

DOUBLESHIP

FLAG SHIPS
150 - 16,000 points

RED BUGS

BLUE BUGS

The most important part
of Galaga strategy is an-
ticipation. In order to play
effectively, you need to
know where the bugs will
appear and how they will
move before they get
there. This knowledge—
combined with double-
ship firepower—will
allow you to finish each
Stage quickly and effi-
ciently.

The way that the bugs
come onto the screen is
called their entrance
pattern, and the entrance
pattern is always the
same for a given Stage.
There are three different
entrance patterns. Before
looking at the other they
appear in, let's look at the
features of each one.

First entrance pattern for Red Bugs.

The first entrance pattern
is the most difficult, be-
cause it is the only pat-
tern where bugs will
enter from both sides of
the screen at the same
time. The bugs enter
single file in short rows,
with the blue bugs com-
ing from the lower left
corner and the red bugs
coming from the lower
right. The best place to
fire from in this entrance
pattern is the center of

14

the screen, where both sets of bugs will cross above you. This is also the safest place to be, because the bugs will drop bullets as they come onto the sides of the screen.

Second entrance pattern.

In the second entrance pattern, the bugs enter from one side of the screen at a time in double-width rows. The first group will enter from the left, so position your ship one ship's width in from the left edge of the screen and wait for them.

Third entrance pattern.

The third entrance pattern is similar to the second. The bugs enter from one side at a time, starting from the left. But instead of two rows moving together, they appear in a single long row. As in the second pattern, you should wait near the left edge of the screen for the first group of bugs.

After the start of each entrance pattern, the general strategy is always the same. Anticipate the entrance of each group, and kill as many of the bugs as possible before they move into formation. Then move across the screen under their bullets to get in position for the next group. Fire constantly as you move across the screen to clear out the bugs already in formation.

If you eliminate most of the bugs in each group before they reach the formation, there will only be a few bugs left after the last group has entered. You'll have to destroy these individually, but this is the only time you need to aim your shots. Galaga may be the only shooting game in which you rarely need to aim!

A Challenging Stage comes after each set of three entrance patterns. The only exception to this is the first set, where the third entrance pattern is skipped. (Another change in the first set is that the first entrance pattern has red bugs on the left and blue bugs on the right, but this does not affect strategy.) In other words, Stage 1 uses the first entrance pattern. Stage 2 uses the second entrance pattern, and then Stage 3 is the first Challenging Stage. After Stage 3, the set of four different Stages (entrance patterns 1, 2 and 3, and a Challenging Stage) repeats over and over.

Starting with the second repeat of the entrance patterns (Stages 4, 5 and 6), special bonus bugs begin appearing. A blue

bug will begin pulsating and move out of formation to change into a short row of three bonus bugs. In Stages 4, 5 and 6, the bonus bugs are yellow scorpions, and shooting all three will earn you a 1000-point bonus. In the next repeat of the entrance patterns, the bonus bugs are small green insect heads, and a set of three is worth 2000 points. The next repeat of the entrance pattern has red and yellow Galaxian flagships for bonus bugs, and sets of three are worth 3000 points. After that, the three different bonus bugs repeat in the same order. Bonus bugs are always worthwhile targets, because they are not very aggressive and are worth more than the other bugs.

In the first two Stages, you won't need to worry too much about entrance patterns because the bugs aren't very aggressive yet. Just try to acquire a doubleship, so you'll have it going into the first Challenging Stage.

The first Challenging Stage.

At the start of the first Challenging Stage, position your ship in the exact center of the screen. To make sure you're centered, watch how your shots pass through the words HIGH

SCORE at the top of the screen. If you're exactly centered, your left shot will pass through the last H in HIGH and your right shot will pass through the S in SCORE.

Special bonus for hitting all the bugs in a Challenging Stage.

From this position, you should be able to get all of the bugs in the first Challenging Stage without moving. In fact, it is possible to shoot all of the bugs in this Stage by just holding the fire button down. If you miss any bugs, you'll get another chance to hit them when they retreat off the top of the screen. Move back to the center immediately after chasing any missed bugs, so you'll be ready for the next group.

The second Challenging Stage can also be cleared from the center of the screen. After that, the Challenging Stages require you to move around more. Each Challenging Stage has five groups of bugs, so there will be up to five different positions you must fire from. Once you have found a position that works for a given group of bugs in a given Challenging Stage, always return to that position for that group. Eventually, you will develop your own set of positions for each Challenging Stage.
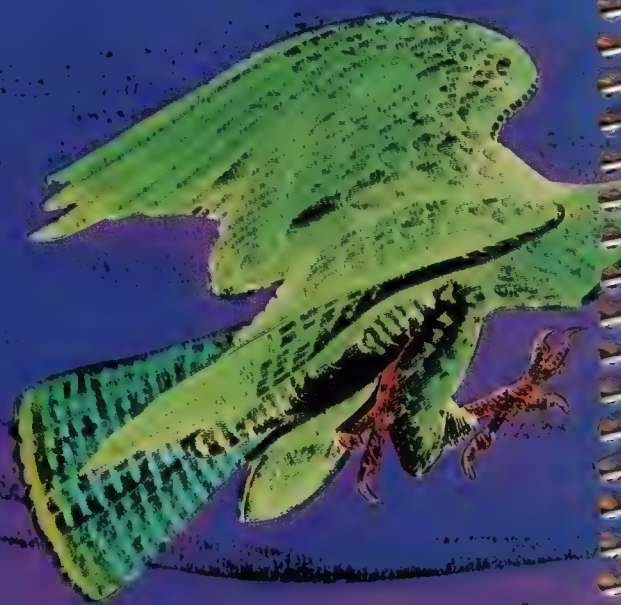
JOUST

Joust is an instant classic. Its spectacular graphics and animation have set standards by which other games are judged, and the game concept is so original that it defies classification. At the start of the game, an Ostrich appears at the bottom of the screen. A man holding a lance is seated on the bird's back—that's you. While riding your feathered steed, you can run across rock ledges or even leap into the air and fly. You must battle with Buzzards (by jousting, of course) and avoid the deadly Lava Troll, a large hand that reaches out of burning lava pools at the bottom of the screen. If you're within his reach, the Lava Troll will grab the Ostrich by the legs and pull you both into his fiery home.

Becoming an expert at Joust requires different skills than in most other games. The first step is becoming an ace flyer. After that, you can set up the enemies in the key areas on the screen. Patience is important in Joust. Flying around chasing after the birds is fun, but it's also a sure way to lose quickly. Always set up the enemies in the proper position and wait for them to come to you. It's the safest and most effective way to play longer and get higher scores.

The most obvious difference between Joust and other flying games is the controls: a two-direction joystick and a flap button. The joystick controls your horizontal motion, while the flap button is used to keep your Ostrich airborne. Each time the flap button is pressed, the Ostrich's wings flap. To stay in the air, you must repeatedly hit the flap button. Flapping about two times per second will hold the Ostrich at a constant altitude; flap faster and you'll rise, flap slower and you'll descend slowly.

For super fast flying, nothing beats the double flap technique. Instead of pounding on the flap button, use two fingers on the button and alternate pressing the button with each finger very quickly. The timing is difficult to learn, but soon you will be able to fly like a Shadow Lord. The double flap is also good for going down, because the fastest way to go down is to bounce off a ledge or the top of the screen.

Gravity pulls you down too slowly, especially with the Shadow Lords and Pterodactyls on the screen. Reversing directions is also quite slow, so it is better to fly out the sides to change position. Flying wildly around the screen is fun, but most of the time you should stay in the same area and move only if you're about to be jousted.

There are three types of opponents in Joust: Bounders, Hunters, and Shadow Lords, worth 500, 750, and 1500 points respectively. They all ride on green flying Buzzards, and the only way to tell them apart (besides their progressively more intelligent behavior) is by the colors of their turbans — Bounders are red, Hunters are grey, and Shadow Lords are light blue.

You destroy opponents by unseating them with your lance. In any collision between you and an opponent, the lower lance loses. If you're both on the same level, it's a "tie," and you bounce off each other.

When you lose a joust, your Ostrich will fly off the screen and then reappear by rising out of a trap door in the least crowded portion of the screen. When you win a joust, your opponent's Buzzard drops an egg and flies off the screen. These eggs are very rubbery, and can survive a fall from any height. Collecting an egg (by landing on it) nets you 250, 500, 750, or 1000 points in progression. A special 500-point bonus is awarded for catching an egg in mid-air. If an egg is left on the ground too long, it will hatch into a small man with a lance, who waits for a Buzzard to land nearby and then climbs aboard. When a man is regenerated in this manner, he comes back at the next higher level of intelligence; Bounders become Hunters and Hunters become Shadow Lords.

PLAYER 1

PLAYER 2

BOUNDERS
500 points

HUNTERS
750 points

SHADOW LORDS
1500 points

PTERODACTYL
1000 points

EGGS
250 - 1000 points

Pterodactyl wave with the middle ledge.

Pterodactyl wave without the middle ledge.

Clear the eggs before they hatch.

EGG WAVES

Wave 5 and every fifth wave after that is an Egg wave. Twelve eggs are randomly placed on the ledges. The best strategy is simply to get all of the eggs right away and advance to the next wave. Waiting for the eggs to hatch will get you more points, but you risk losing a life. The extra time required also makes the Pterodactyl come out. Eventually the eggs will hatch so fast that it's impossible to get them all before the birds pick them up. In that case, just clear off two rows of eggs and move to safe ground. Egg waves always have every ledge on the screen, so play the fast hatching Egg waves like a normal wave with all the ledges.

PTERODACTYL WAVES

On wave 8, then every fifth wave, Pterodactyls appear at the beginning. Only one Pterodactyl appears on early waves, but the maximum of three will appear in later Pterodactyl waves. Avoiding the Pterodactyl and jousting the other warriors is difficult, but it's usually unnecessary. The early Pterodactyls can be killed from one of two spots. When the middle ledge is present, stand on it before the Pterodactyls come out. The Pterodactyls will appear on the bottom and fly right up into your lance. On some waves, the warriors will come after you before you can hit the Pterodactyls. It's all right to jump up a little to avoid them. The Pterodactyls go to the same place as long as you're standing on the ledge before they come out.

When the middle ledge is missing, stand on the bottom ledge directly above the hundred-thousand digit in the first player's score. You have about an inch of space in which to kill the Pterodactyls. This time, the Pterodactyls enter from the middle and come down to you. While you're standing there, no Buzzards will enter from the bottom ledge. Any Hunters coming down from the right will buzz right over your head and sink into the lava. Once the Pterodactyls are gone, move back to the center and play the wave normally.

NORMAL WAVES

The first 15 waves consist of only Bounders and Hunters. In wave 16 the Shadow Lord makes his first appearance. More Shadow Lords are added each wave until there are only Shadow Lords in every wave. Surviving these waves consistently is the mark of a Joust wizard. Shadow Lords are fast, but they are very predictable. Always try to kill the Hunters before dealing with the Shadow Lords. Fortunately, Shadow Lords take a long time to energize, which gives you a chance to kill the Hunters.

Two different strategies are required after wave 15. The middle ledge is the key. When the ledge is there, stand on the energizing area right under it. When Hunters approach from the side, fly up and kill them. Shadow Lords usually drop down from the side ledges. As long as you're on the ground, they will stay on the ground. When one runs toward you, fly up just before he hits you. You will kill him and also catch his egg in the air. When the middle ledge is not there, play it like a Pterodactyl wave. Stand on the bottom ledge over the first player's score. Hunters coming from the right will drop into the lava. Hunters coming from the left will be caught by the Lava Troll. After the Hunters are gone or trapped, go back to the middle. The basic idea is always the same—let the enemies kill themselves by coming to you rather than chasing after them.
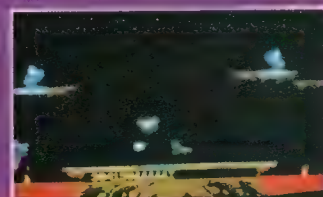
Fly above the lower energizing platform on Shadow Lord waves.

SHADOW LORD WAVES

Wave 37 is the first to consist solely of Shadow Lords. After that, only Egg waves and the waves immediately after the Egg waves have Hunters. After wave 60, every wave is all Shadow Lords. All Shadow Lord waves are actually quite easy because they are so predictable. Again, strategy is determined by the middle ledge. Standing under the middle ledge is no longer advisable; it

takes too long to wait for the Shadow Lords to drop down to the bottom. Instead, hover at the top of the screen, directly over the right energizing area. Most of the Lords will appear underneath you and fly straight up. The others will bounce along the top of the screen. You might have to move a little to adjust to their bounces. After they're all gone, quickly go around and collect all of the leftover eggs.

When the middle ledge is missing, hover directly above the bottom energizing area. Hover just high enough to allow the Shadow Lords to appear underneath you. Let them fly up into you and kill themselves. As soon as you see which way they are facing, move over in that direction to make sure they hit you. Always stay below the Shadow Lords on the side ledges. After all of them have come out, drop down to the bottom. When one of the remaining Shadow Lords drops down from the side, hover where the end of the middle ledge would be. He will drop right past you, then come up under you.

TWO-PLAYER STRATEGY

When two play simultaneously, many different strategies are available. Usually, both players team up against the enemies. The best way is to have each player cover his own side of the screen. Use the same strategies as in a one-player game. The only difference is that you have to avoid the other player. Greed doesn't pay off in doubles. Both players going for the same bird or egg usually causes a fatal collision. Always allow the player with fewer lives to get the extra points (on Egg waves for example). This will keep both players playing as long as possible.

The Pterodactyl waves are the same as in a one-player game. Both players should stand on the middle platform. If threatened by an enemy, one can jump up to protect both players. Without the middle ledge, both players should be on the bottom, one on each side. The player on the right should be on the extreme right edge, facing to the left.

On the Hunter and Shadow Lord waves, both players should play the bottom, with one player under each edge of the middle ledge (even when it isn't there). Kill the Hunters first, then get the Shadow Lords dropping from the sides. When one player is killing a Shadow Lord, the other player should be standing on the bottom. Otherwise, the Shadow Lord may go after him and kill the first player in doing so. With only Shadow Lords, both players should hover side by side above the bottom energizing area and kill all but the ones standing on the sides and on top. When the middle ledge is there, both players should play the top. One should be directly over the right side energizing area. The other should be between the top middle and top left ledges, or directly over the left energizer when possible.

PTERODACTYL HUNTING

Original Joust machines were often victimized by the infamous Pterodactyl hunters. A technique was quickly developed which allowed players with very little skill to play one game forever. You could catch the last enemy in the hand and stand on the middle ledge while the Pterodactyls would rise from the bottom and fly up to you. You could stand there all day and kill Pterodactyls as the last enemy was still stuck in the Lava Troll's grasp.

A new chip was quickly provided to correct the problem, but there are still some old chip games in circulation.

Killing a Pterodactyl at the end of a wave.

With the new chip, mass slaughter of Pterodactyls isn't possible, but hunting single Pterodactyls can still be done. Attacking one from the air is an excellent test of your flying prowess. The best time to go after one is when there are a lot of warriors flying around. You get a slow motion effect, which gives you a better chance to spear the Pterodactyl right in the mouth. An easier way to kill one is to take a cheap shot at the end of a wave. When the Pterodactyl leaves the screen at the end of a wave, he leaves on one of three levels. When he goes off the middle of the screen, you can kill him by standing on one of the side ledges (the lower one on the right side). Another way is to stand on the extreme right edge of the bottom ledge on a wave with the middle platform. When the Pterodactyl comes out from the middle platform let him come to you. Just before he reaches you, flap once and you'll jump up and kill him.
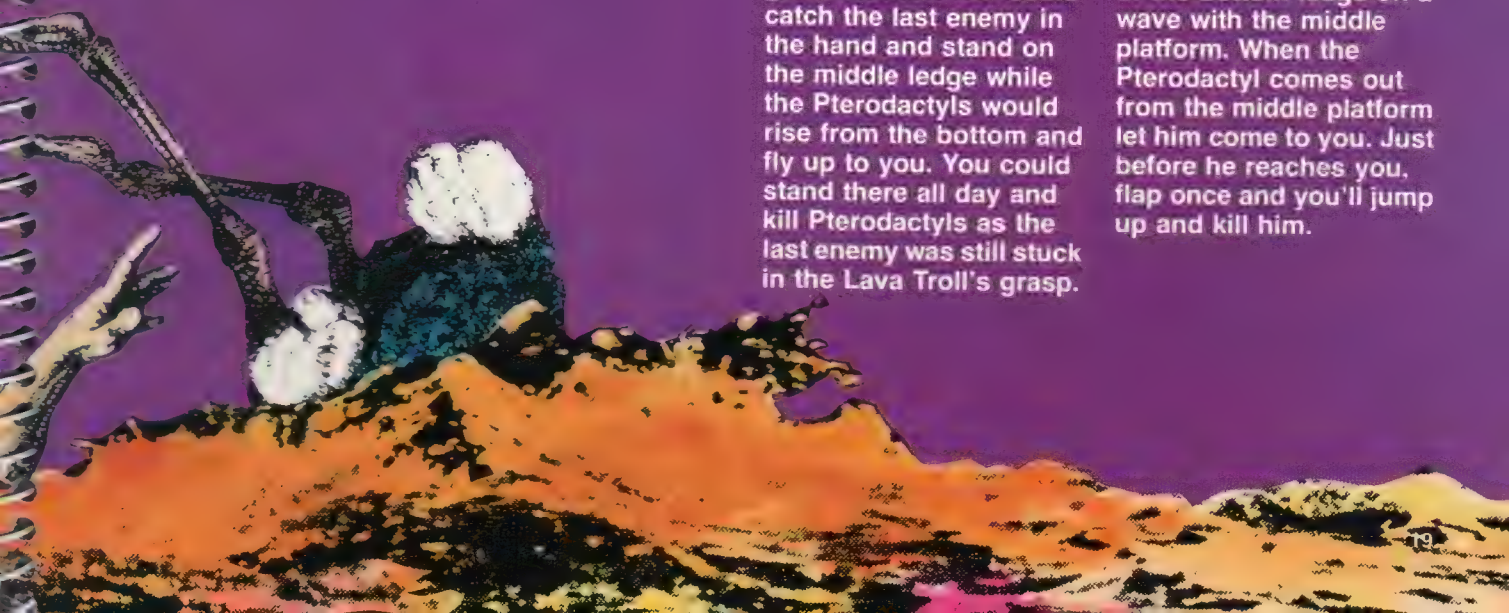
MS. PAC-MAN

What was the most popular game of the last three years? Pac-Man, of course. And the second most popular game? Ms. Pac-Man—the most welcome sequel game yet.

Very few changes were made in the original Pac-Man program to produce Ms. Pac-Man. But the changes that were made have only generated more interest in the game. To Pac-Man players, the most obvious difference is that patterns cannot be used in Ms. Pac-Man. Blinky and Pinky take random paths during the first five seconds of each screen, so no pattern can be consistently safe. A particular start may appear to work well most of the time because Blinky and Pinky are off in left field, but there is always a chance that one of them will turn in front of you or be uncomfortably close.
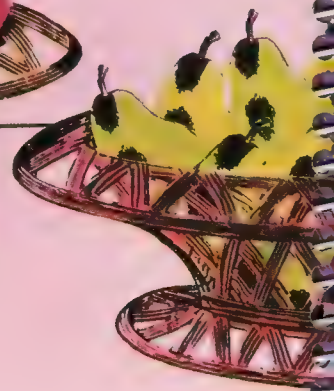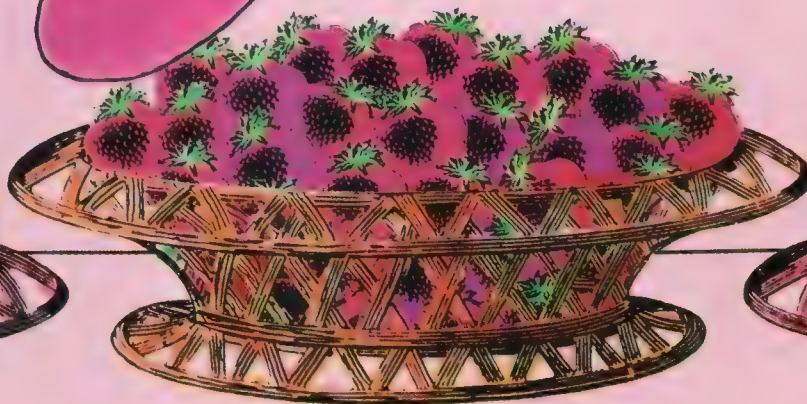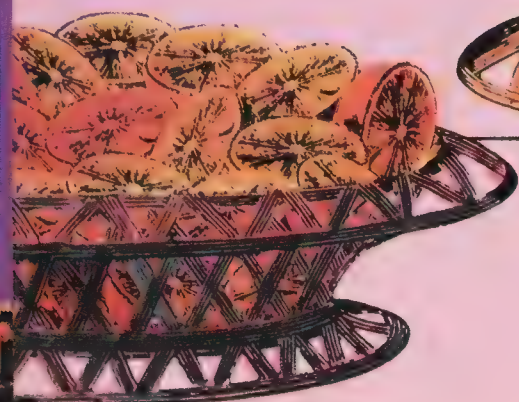
Ms. Pac-Man is less tiring to the eyes than Pac-Man. The mazes come in pastel colors and Ms. Pac-Man herself is more personalized with her lipstick, eyeshadow, and ribbon. The intermissions are also more detailed and entertaining. The third intermission is the best of all—Pac-Man, Jr. is brought in by a stork to expectant parents.

There are four different mazes in Ms. Pac-Man, rather than just one. This gives beginning players something new to look foward to—you never know what's beyond the next screen until you get there. And having four different mazes prevents players from becoming so good at one maze that they don't even need patterns.

Another new feature of Ms. Pac-Man is that the fruit is not stationary—it comes in one of the tunnels and moves clockwise around the center of the maze. If not eaten, it will tromp right back out after a while. The value of the fruit increases steadily from 100-point cherries to a 5000-point banana, and from then on the fruits appear randomly.

Your objective in Ms. Pac-Man is exactly the same as in Pac-Man—clear as many screens as possible, and avoid the monsters when they aren't blue (energized). Just in case you're one of those people who never played Pac-Man (if, indeed, there are such people), the following is a more detailed explanation.

You control a yellow gobbler (Ms. Pac-Man) with a four-direction joystick. Maneuvering through a maze filled with white dots, you must avoid the four monsters (Inky, Blinky, Pinky, and Sue) who will pursue you. Each of the monsters has its own personality, and learning how each of them reacts to specific situations is the key to playing well.

Your goal is simply to clear the screen of dots, by passing over (eating) them all. If you eat all of the dots, the screen is filled with dots again— possibly in a different maze—and you start over again. Bonus fruits appear twice during each screen. These should be eaten also, because they can be worth up to 5000 points.

Four of the dots in each maze have a special meaning. Appearing in each of the four corners, these large flashing dots are called energizers. When you eat an energizer, the monsters will all slow down and turn blue for a few seconds. During this time, Ms. Pac-Man is invincible and can eat the monsters for extra points. The first blue monster is worth 200 points, and the next three are worth 400, 800, and 1600 points each. Using an energizer perfectly, then, is worth up to 3000 points.

MS. PAC-MAN

INKY red
200 - 1600 points

BLINKY green
200 - 1600 points
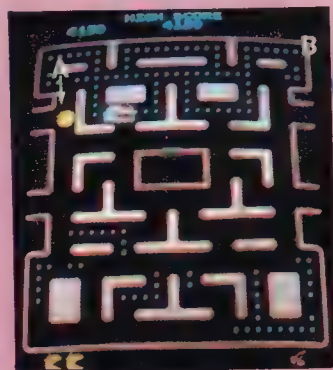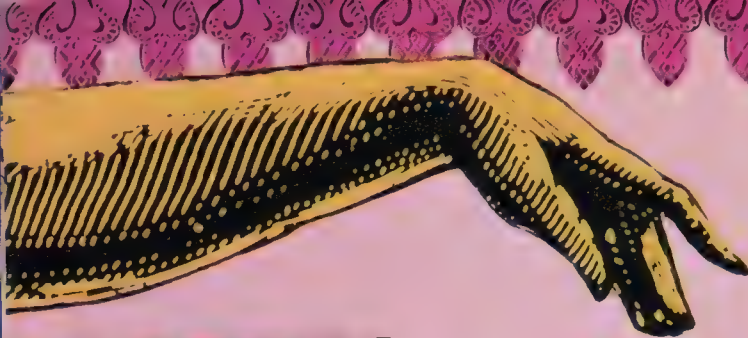

PINKY pink
200 - 1600 points

SUE brown
200 - 1600 points


PRIZES
100 - 5000 points

21

Bring the ghosts down the wall.

FIRST MAZE

Your goal on the first two boards should be a perfect score of 29,400 points. Stay near the tunnels and avoid the ghosts until they have reversed twice — and then you're ready to go for points. The ghosts will not reverse again for 18 minutes unless you die.

To get 1600's on the top two energizers, go back and forth in the top tunnel until Red, Pink, and Blue are close together in the long top row. Gold won't chase you, but make sure she is reasonably close to the others. Then wait at point A for the ghosts to turn down as shown. Go through the tunnel and wait at point B for your 1600. Getting 1600's on the bottom energizers is even easier — just let all four ghosts follow you on the bottom row, grab the energizer, and reverse to eat them. Then use the temporary hiding spots to clear the remaining dots. Whenever the three smart ghosts (Red, Pink, and Blue) turn away from you, go to a safe part of the board and clear it off.
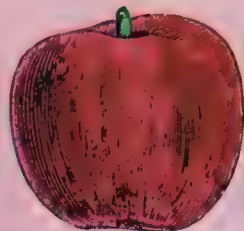
SECOND MAZE

This maze is used on the orange, pretzel, and apple boards. Although a score of 77,600 points is possible after the apple board, the 1600's are more difficult on this maze; 62,000 is a good score for the end of the apple board.

The bottom two 1600's are similar to the first maze. Use the bottom tunnel to get Red, Pink, and Blue together after the two reverses. Then let them follow you to one of the bottom energizers, just like in the first maze.

Trap the ghosts at Point A.

Point A is the key spot for using the top energizers. With Red, Pink, and Blue close together, parking at point A will send them into a loop as shown. If Blue turns right out of the loop, move to the right and then back to A; she will continue to the right and miss you.


Get a 1600 at Point B.

Once all three monsters are in the top loop with Gold nearby, go down and grab the energizer. The monsters will reverse when they turn blue, coming right back towards you. Eat them all for a 1600, and then use point A to clear any remaining dots on the right side of the board. Point B can be used in a like manner to clear the left side and get a 1600 there.

THIRD MAZE

The third maze is the easiest of the four mazes. From point A it is possible to set up the ghosts for 1600's on every corner. Then you can clear the rest of the dots with short patterns for each part of the board.
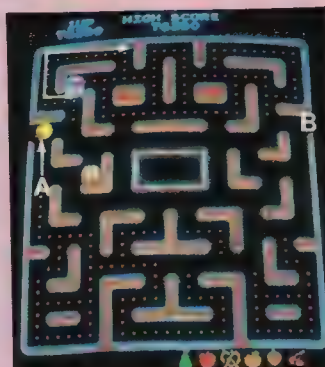
Point A, the most important spot on the third maze.

When you start the maze, don't go into the bottom loop right away. Go up to the tunnel and wait for both reverses. Go between point A and point B until Red, Pink, and Blue are locked up at point A. By moving back and forth between A and B, you can get the ghosts closer together. Point A is a permanent hiding spot. When you stop there with Red, Pink, and Blue anywhere in the top part of the maze, they will circle above you forever. Meanwhile, Gold will circle below you in one of two patterns. Make sure Gold is circling next to the middle box.

Getting a 1600 in the lower right.

It is best to go for all four energizers before clearing the dots, because Red will speed up after you have eaten most of the dots. At point A, wait until the three ghosts turn to go under the energizer, then go out the tunnel and wait under the top right energizer. The three ghosts will come right behind you and Gold will be near point B. Eat all four and go back to point A to set them up again. Set them up the same way for the bottom right energizer.

As soon as Red, Pink, and Blue turn above point A, go out the tunnel, down the right wall, and around the bottom right loop. Red, Pink, and Blue will come right behind you and Gold will be just above them.

Getting a 1600 in the lower left.

Use point B as a hiding spot to get the top left energizer. The ghosts will not turn right above point B automatically—you have to move right to force them to turn right. As soon as they turn, go out the tunnel and under the top left energizer to wait for them. Gold will be at point A and come right up to you for the 1600.

For the bottom left energizer, use point A again. This time get the red ghost slightly ahead of the other two. When Red turns above you by himself, go straight down and wait next to the energizer. Pink, Blue, and Gold will pass by and circle below you. They will not come up under you. Red will come right behind you. Eat him first, then go down to eat the other three.

Point C will help you clear the rest of the dots. Set up the ghosts at point A so Red is ahead of the other two ghosts. Go straight down and over to point C. Pink, Blue, and Gold will again go past you and circle on the bottom left. Now you can clear any dots to the right of you by leading or going around only the red ghost. Clear off as much as you can, then set them up again. It may take four or five passes to get all of the dots.

Patience is the key to the third maze. Always set up the ghosts so you are in control of them. Always wait at the tunnel for the fruit to come to you. Don't make the rookie mistake of chasing down a banana only to get killed doing it.

Pink, Blue and Gold go down.

FOURTH MAZE
In the fourth maze, it is important to keep moving. The middle of the maze is the safest—there are lots of turns and the four tunnels give you access to all four corners of the maze. Try to group the Red, Pink, and Blue ghosts together by making a loop around the tunnels. Keep them close behind by pausing at

each tunnel entrance. Then lead them around until you have a clear path to one of the corners with all three behind you. Here's a useful tip: watch what Gold does when you are leaving each tunnel, and then remember to avoid that path when you're in that area of the maze.

The energizers are harder to use for big points because of the long paths around them. Try to at least keep Red, Pink, and Blue close together for the 800's. Use the ghosts' recovery time to clear the remaining dots around the energizer. Remember to stay around the middle of the maze, especially at the end of the board when Red speeds up.

A fourth maze hiding spot.

The bottom right part of the maze is good for losing the ghosts behind you. Facing down will cause the three smart ghosts to go straight down past you on the left. Then you can go up to the top or follow them around the bottom. Point A is a good hiding spot, but not permanent. Blue will not always make the turn down, which forces you to move.

The top dots can be cleared by making large circles around the maze. Lead the ghosts around the outside of the maze by pausing near the corners and facing to the side of the maze. If they get separated, make the loop through the tunnels to get them back together. Don't let them take shortcuts through the middle to cut you off.

LATER MAZES
After the fourth maze, the third and fourth mazes alternate in groups of four. On board 17 the ghosts do not turn blue. Board 18 is the last time the ghosts turn blue. On board 21 and beyond, just as in Pac-Man, you move much more slowly than the ghosts. A few things to remember— you slow down when you eat dots, so clear the long straight paths early before Red speeds up. On the third maze, use the tunnel as an escape. On the fourth maze, stay near the center. You can turn faster than the ghosts can, and there are more places to turn near the middle. Use the energizers to make the ghosts reverse, and follow them out of the corners.
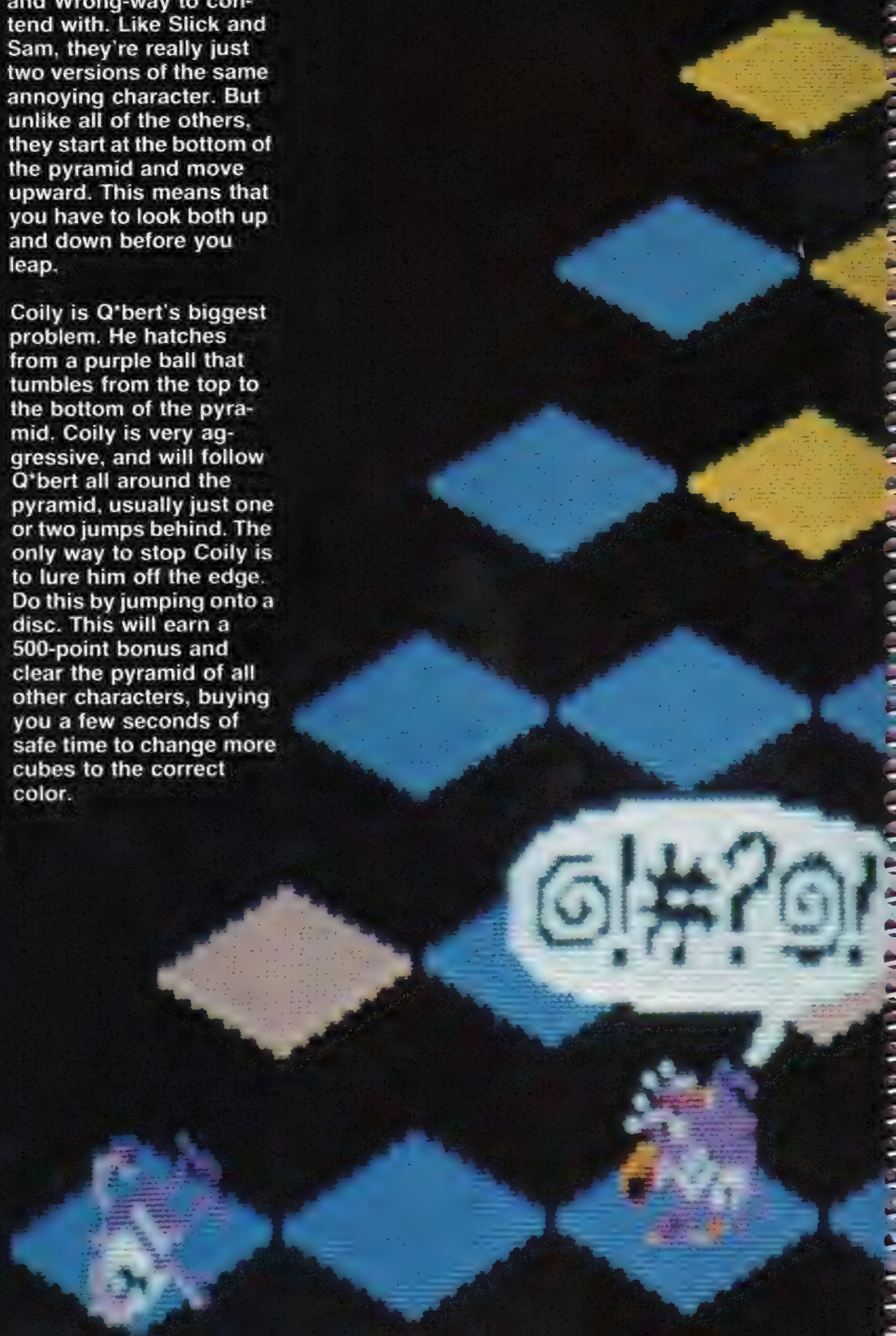
Q*BERT

Nobody likes to be told what to do, and Q*bert is the first talking game that respects this fact. Rather than tell you something important or taunt you with insults and dares, Gottlieb's Q*bert just randomly strings together a few sounds and blurts them out. Recognizable words and phrases can come out of his invisible mouth, but they're never intentional. There's an equal chance that he'll say your name, his name or your favorite four-letter word.

The pyramid on each round is made up of 28 cubes, and Q*bert must change all of them to the same designated color before going on to the next. He changes a cube's color by jumping on it. Changing it to the correct color scores 25 points. On the highest levels of the game, cubes change color with each jump. For these levels, changing a cube to an intermediate color is worth 15 points. Leaping off the cubes on the edge will plunge Q*bert to his death — unless he lands on a disc.

Starting with the third round, you'll have Ugg and Wrong-way to contend with. Like Slick and Sam, they're really just two versions of the same annoying character. But unlike all of the others, they start at the bottom of the pyramid and move upward. This means that you have to look both up and down before you leap.

Coily is Q*bert's biggest problem. He hatches from a purple ball that tumbles from the top to the bottom of the pyramid. Coily is very aggressive, and will follow Q*bert all around the pyramid, usually just one or two jumps behind. The only way to stop Coily is to lure him off the edge. Do this by jumping onto a disc. This will earn a 500-point bonus and clear the pyramid of all other characters, buying you a few seconds of safe time to change more cubes to the correct color.

The green ball, which first appears on the third round, is a great asset. Jumping on it will momentarily freeze all of Q*bert's enemies. You will also score 100 points, but the freezing action is more important. Q*bert is still free to move while the other characters are stopped, so you can change many of the cubes if you use the time wisely.

The red balls behave very much like the green ones; they land on the second level of cubes (from top to bottom) and randomly hop to the bottom. But these balls are deadly to touch. It's easy to remember the difference, though— green means go ahead, and red means stay away. This is true for all of the characters—if it's green, it's safe; other-wise it's deadly.

The colorful spinning discs are Q*bert's escape hatches. When the going gets tough, you can jump on a disc and be safely transported back to the top of the pyramid. If Coily is following close behind, he'll fall to his death—with a realistic scream—when you land on the disc. Each disc can only be used once, so don't jump unless it's the only way out. A 50-point bonus is awarded for each unused disc at the end of a round.

Starting on the third level, Slick and Sam begin to appear. They are really the same character in two different guises; each will start at the top of the pyramid and meander down to the bottom, following a random path. Each time Slick or Sam lands on a cube, its color changes, and Q*bert must go back and change that cube to the correct color again. The only way to stop Slick or Sam is to jump on him—this scores 300 points.

Q*BERT

DISC
50 points
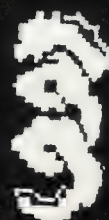
COILY
500 points

RED BALLS
GREEN BALLS
100 points

UGG

WRONG-WAY

SLICK, SAM
300 points

25

Fill the bottom on level 1.

Fill the bottom again on level 2.

Level 3.

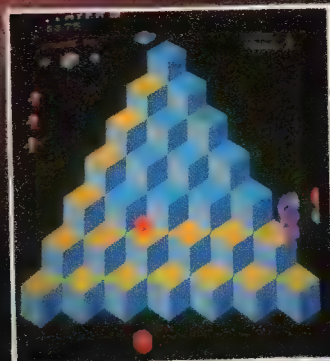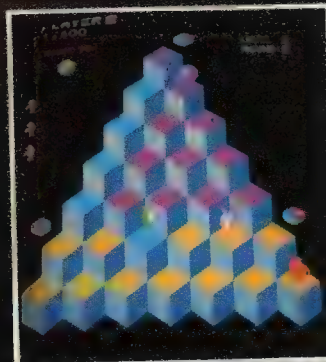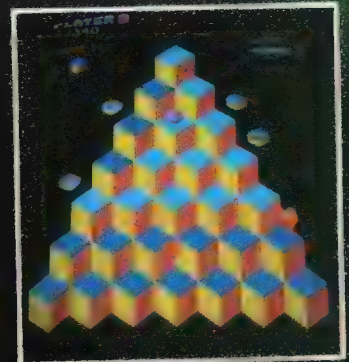The basic objective behind all of the Q*bert strategy presented here is: get the lowest cubes first. There are two reasons for this. First, the discs always bring you back to the top of the pyramid, so the top cubes are easy to pick up last. Second, Slick and Sam start their dirty work at the top, making it hard to keep those cubes changed to the correct color.

Although your basic objective never changes, the exact procedure you must follow will change for each level. This is because of the way the cubes change color differently on each level. Levels 1 through 5 each require a slightly different approach, and then after level 5 the same strategy can be used indefinitely.

On level 1, start out by moving down the left edge of the pyramid as the player shown above has done. Then zigzag to the right across the bottom two rows.

Eventually, Coily (the purple snake) will catch up with you. When he does, take time out to lure him to one of the discs. Jump on the disc when Coily is one cube behind you, and he'll leap to his death, clearing the screen of enemies.

After you have eliminated Coily and the disc has brought you back to the top of the pyramid, move back down to the bottom and pick up the cubes you missed on the first pass. Coily will come out again soon, so use the other disc to get rid of him. Then move down the pyramid and hit all of the remaining cubes.

On level 2, you must land on each cube twice to change it to the proper color. Start out the same as level 1, but make sure to land on each cube in the bottom two rows twice. The best way to do this is to move slowly across by repeatedly jumping one cube forward, one cube back, and two cubes forward. As in level 1, Coily will start following you, so use the discs to get rid of him and finish off the rest of the pyramid. Slick and Sam will begin showing up to harass you, so jump on them whenever you can.

In level 3, the way that the cubes change color grows even more complicated. Each cube can take on one of two colors, and the colors alternate whenever you land on a cube. In other words, you must land on a cube an odd number of times to change it to the right color. If you land on a cube twice, you must jump on it again to change it back to the correct color.

Start out by moving down the left edge of the pyramid as in levels 1 and 2. Then move back up two cubes and begin zigzagging across the bottom two rows. This will leave one of the left edge cubes the original color, as shown above.

26
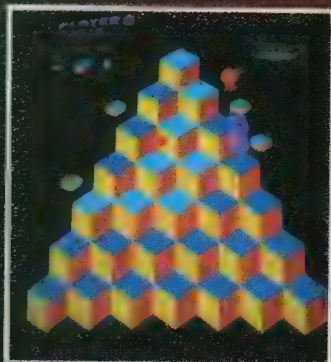
Fill the right side on level 3 and lure Coily to his death.
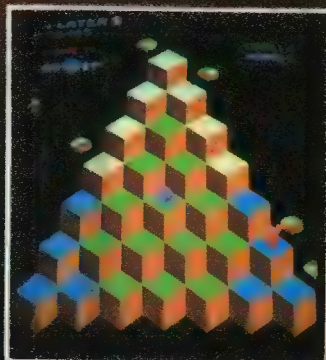
Fill both lower corners and wait by a disc.

Begin the lower left corner in this way.

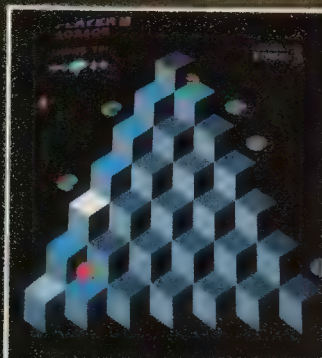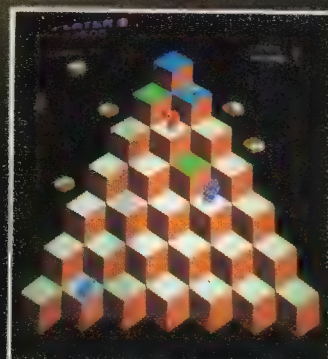Near the end of the board, wait here for Slick or Sam.

Once you reach the lower right corner, jump back and forth on the bottom three rows to get in step to move up the right edge of the pyramid. Then move up the right edge until you reach the third cube from the top. Wait there for Coily, and jump on the disc when he is one cube away. After the disc brings you back to the top, you can follow one short path to hit all seven remaining cubes.

On level 4, the cubes change color by a combination of the methods of level 2 and level 3. You must hit each cube twice, but hitting a cube that is already the proper color will change it back to the intermediate color. In other words, you must land on each cube an even number of times.

Start out by moving down the left edge and filling the lower left corner as shown above. Coily will come out very soon, so use the lower left disc to get away from him. Then repeat the same steps for the right side of the pyramid.

After the corners are complete, move through the remaining center cubes to change them to the intermediate color. Then move back through them to change them all to the final color.

At this point, Coily will be on your tail again. Use one of the top discs to get rid of him, and then quickly change the few remaining cubes to the final color.

Level 5 is the most difficult level yet. The cubes change color in the same manner as level 4, but the third hit on each cube will change it back to the original color rather than the intermediate color. In other words, you must land on each cube one less than a multiple of three times.

First move down the left edge to the lower left corner. Then move back up two cubes and back to the bottom again. Move up to the second row and begin zigzagging across the bottom two rows. This will put you in the position shown above.
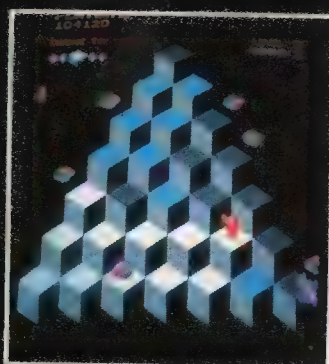
Continue along the bottom.

When you get to the right corner, use the disc to kill Coily. Watch out for Ugg, who may enter from the lower right corner cube.

After you reach the top (via the disc), move down the right edge and cross through the center section twice. Stop on the center cube of the third row from the top, and wait for Coily to begin moving up from the bottom.

When Coily reaches the middle row, Slick or Sam will appear on one of the two cubes in the second row. Jump on him, and then wait for Coily to come close enough to be lured off the edge near a disc. Dump Coily off the edge, and you should be able to finish the few remaining cubes before he returns.

ROBOTRON

Robotron is a favorite among experienced video players. It has all the appeal of the earlier Williams classics Defender and Stargate, but without the complex controls. It was the first game to introduce dual joysticks, giving the player excellent mobility and firepower. Blasting away at over 100 enemies in one wave is not uncommon, making Robotron the shoot-em-up player's dream.

Robotron is basically Defender played on the ground. The same "save the humanoids" theme exists. The difference is the many types of waves, each requiring a different strategy. Robotron is a deceiving game — there

are many enemies attacking at once, but they aren't very fast and most aren't very smart.

In Robotron, the player does not assume any fantasy identity, such as the commander of an inter-galactic spaceship. It's you against an assortment of computer-generated menaces in a fast-moving battle of futuristic forces. You appear in the middle of the screen and, due to an error in genetic engineering, you have acquired super laser powers. This is your only defense in the game in addition to your craftiness. You can shoot in any direction, and nearly all your enemies are destructable. Survival is your goal.

Surrounding you on the expansive field of black are your adversaries, a collection of high-technology monsters. Your assigned mission is to rescue a family of Humanoids — Mommy, Daddy and Mikie — from the stampeding robots. But saving the Humanoids is just one of your objectives. You get points for them, but your primary task is to clear the field of enemies.

At first you encounter stomping red and yellow Grunts. These creatures are destroyed by a direct hit from your laser. Worth 100 points each, they are also eliminated when they contact an Electrode. You can move behind a red or blue Electrode and watch a Grunt meet his fate.

Constant fire is your best weapon against Electrodes and Hulks. The Hulks are not just your sole indestructable foe, but they are also the only enemy capable of totally destroying the Humanoids. Your laser can, however, push them away from a helpless victim. And watch for the 1000-point Spheroids. A collision with one can be deadly. Spheroids also produce Enforcers, worth 200 points each.

In wave 5, you will encounter Brains, clever creatures who fire Cruise Missiles. Kill a Brain and you earn 500 points. Brains also have the ability to transform Humanoids into mutants
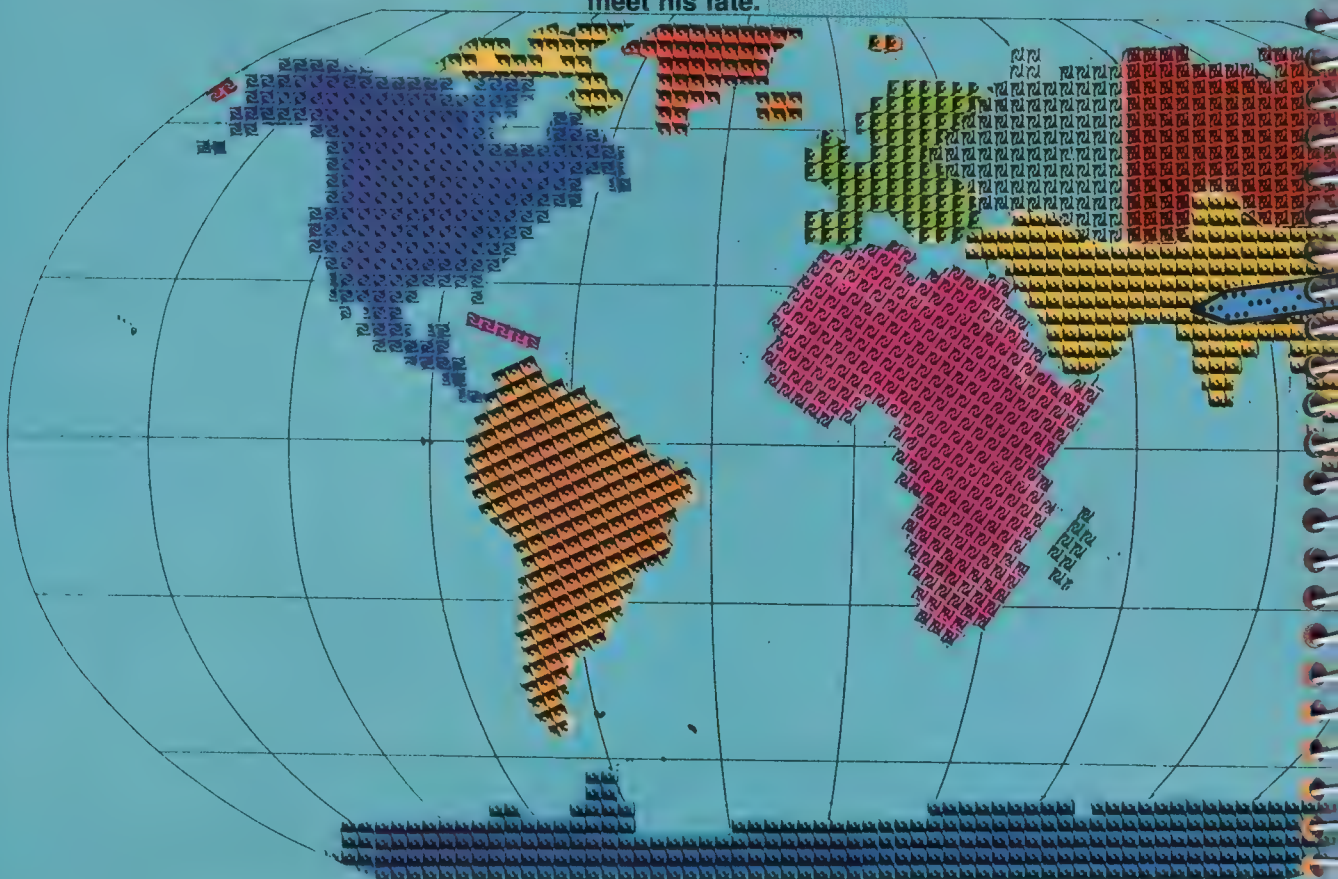
called Progs. Progs are dangerous because they move erratically and if you run into one, you're dead. In advanced waves, Brains conspire with the Hulks, a perilous combination under any circumstances.

Tanks are worth 300 points. Your best bet is to destroy these dangerous machines while they are still Quarks. If you fail to do this, attack them as early as possible, while they are still developing. A fully formed Tank will fire cannonballs at you, deadly ammunition that can hit you directly or rebound off the wall of the screen.
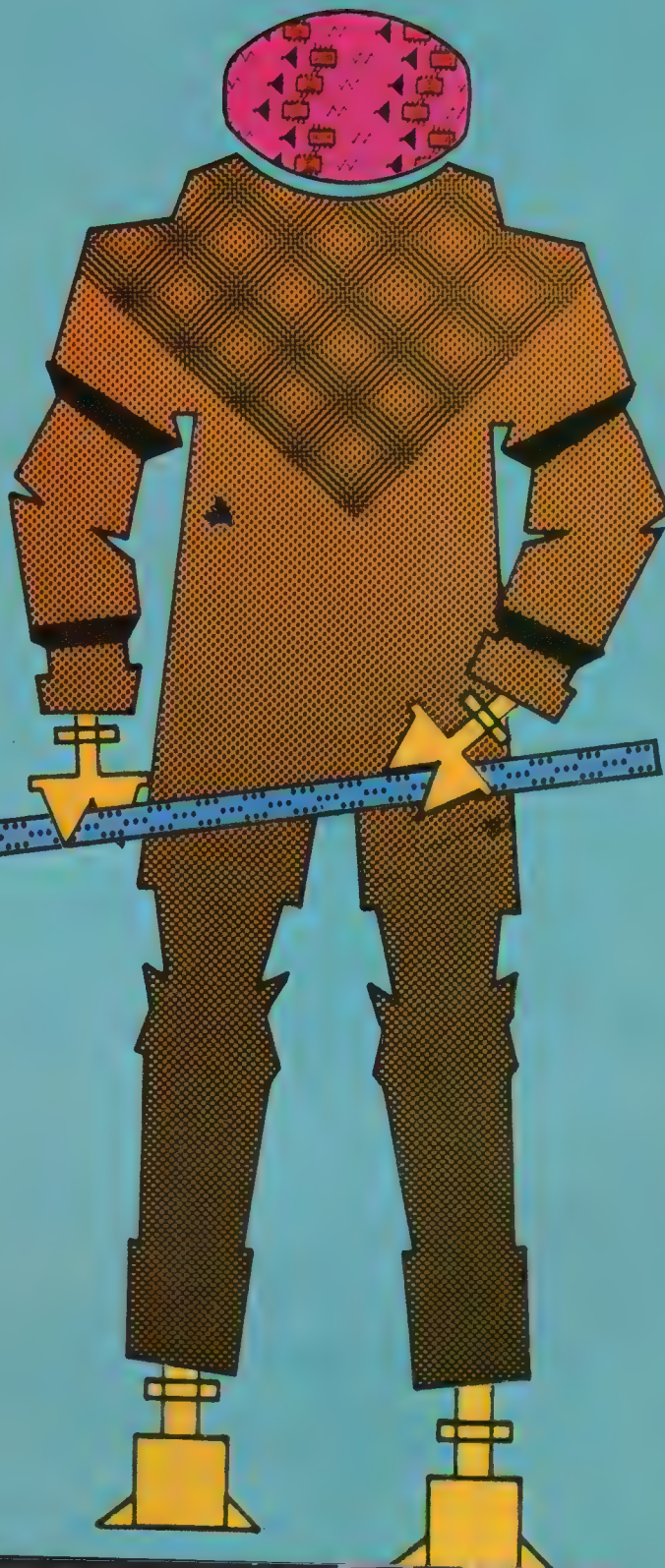
PLAYER

HUMANOIDS
1000 - 5000 points

GRUNTS
150 points

SPHEROIDS, ENFORCERS
1000 points, 150 points

HULKS

BRAINS
500 points

TANKS
250 points

QUARKS
1000 points

29

Most waves have the normal assortment of Grunts, Hulks, Spheroids and Enforcers. A good strategy is to kill off the Grunts in the immediate area, shoot the Spheroids before they turn into Enforcers, then kill the remaining Grunts. The Enforcers are the biggest problem. They act much like Tanks and they are more deadly at long range. Both Spheroids and Enforcers have a habit of sticking to the corner or edge of the screen where they are most dangerous. Stay away from the edges of the screen when they hide in the corner. Enforcer shots move along the walls when they hit the edge of the screen. Beginning at wave 28, a few Quarks are thrown in each wave (including the special waves) to add to the fun. Handle the Quarks just like the Spheroids. Hit them before they change into the more dangerous enemy (Tanks). In all waves, your biggest source of points is picking up the Humans. Always go out of your way to pick up stray Humanoids.
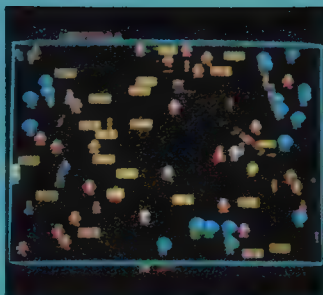

Rescuing the last family of Humanoids in wave 20.

BRAIN WAVES
Every fifth wave is a Brain wave. The Brains are the most powerful Robotron enemy. They shoot deadly Cruise Missiles that follow you around. They also program your Humanoid friends into wild Progs that will kill you. Fortunately, the Brains only appear in Brain waves. It is nearly impossible to complete a Brain wave without losing a life. Therefore, the best strategy is to use your first man to collect as many Humanoids as possible. Collecting seven will earn you an extra life. Be aggressive, go for the Humanoids even if it is doubtful you will survive. It's amazing what you can get away with if you try.

When the Humanoids are gone, circle around the outside of the screen. The Brains should be your first priority. They are usually in groups, sometimes right on top of each other. Don't waste time trying to shoot the missiles. They are so unpredictable that it is better to avoid them. Using two or three lives in a single Brain wave should still be considered a success. There are so many Humanoids walking around that you can easily make up for the loss of lives.

There are four different Brain waves: a Mommy wave, a Daddy wave, a Mikie wave and a Family wave. The type of Humanoids in the Brain wave doesn't affect the strategy at all, but occasionally you can see strange things like Mikie riding piggy back on a Mommy, or twin Mikies holding hands.
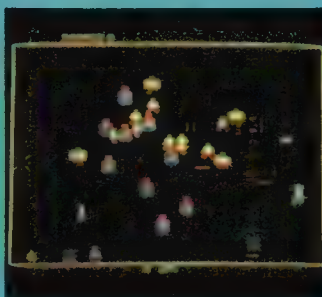
Battling the Tanks on wave 12.

TANK WAVES
Beginning at wave 7, every fifth wave is a Tank wave, consisting of only Tanks and Hulks. The Tanks start out as Quarks, which bounce diagonally around the screen. Quarks don't shoot, but they move unpredictably. Each splits into Tanks that do shoot at you. At the beginning of a wave, you have a lot of room to move around. Immediately go for the Humanoids before the Hulks have a chance to kill them off. Get rid of as many Quarks as possible so you don't get a huge army of Tanks later.

Once the Tanks start to appear, head for the center—the safest place to be is right in the middle of the action. The Tanks and their shots move slower when you're closer to them. You also avoid the deadly Tank shots that you have to dodge on the edges of the screen. Tanks shoot large balls at you that can be destroyed by your shots. To be safe, try to shoot them at the same time you're trying to avoid them.

A Tank wave is a good time to take a break without losing a lot of lives because each Tank has a limited number of shots. When you get to the last Tank, let it use all of its shots. Once it's empty, all you have to do is avoid the Hulks and the one Tank. Warning: if you die, the Tank gets a fresh supply of shots.
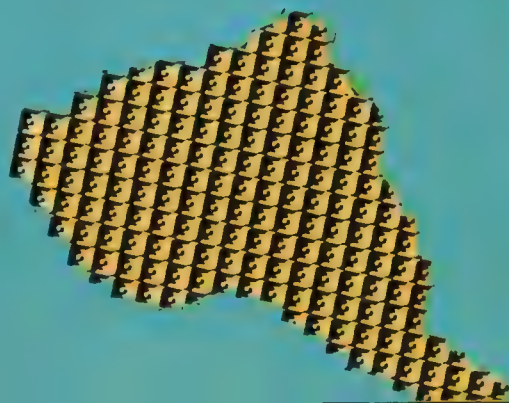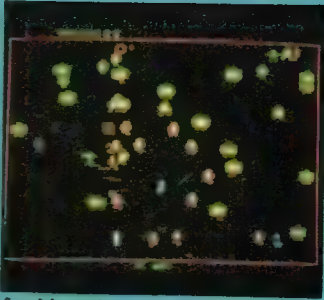
Avoid getting trapped by the Hulks.

Fight your way to the edge.

Head for a corner.

HULK WAVES

Waves ending with 4 alternate between two different situations. One is a Tank wave with Spheroids added. The other has mostly Hulks and some Grunts and Spheroids. The Tank and Spheroid wave should be played just like a regular Tank wave. Spheroids and Quarks are very similar. They aren't very dangerous until they turn into Enforcers and Tanks. It's best to shoot them before they change, but try to get the Humanoids at the same time.

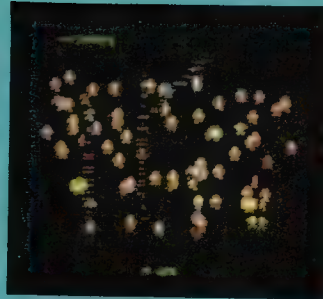The other wave is a little different. The herd of Hulks roaming around makes it hard to move safely. You'll have to do some tricky maneuvering to avoid being trapped. Try to stay in the open areas and let the Grunts move into your line of fire. Remember, you can surround the Hulks and push them away with your shots. Most of the Humanoids are flattened immediately so this is not a very high scoring wave.

GRUNT WAVES

Every wave ending in 9 is the infamous Grunt wave. More enemies are on the screen at one time than in any other wave. It is not as difficult as it seems, for the Grunts are the weakest enemy. They relentlessly chase you without shooting. Eventually they do get faster than you so you can't take all day to kill them. The key to surviving a Grunt wave is to make a quick decision right at the start. Pick one of the four corners and clear a path to it, then decide to go to the top or bottom. Never go straight to the right or left or the mass of Grunts will cut you off before you can get to the other side. When you get to the corner, follow the side wall to the next corner, then go along the top or bottom. You should be able to shoot enough Grunts while going along the side to allow you to make it across the longer top or bottom walls. Continue in a circle around the screen until you have the Grunts cut down to a reasonable number, then go after the Humanoids.

Deciding which corner to go to is the tough part. You have to do it as the Grunts are materializing. Your decision should be based on two things: the number of Grunts in the way, and the Hulks in the area. Occasionally you get an impossible set-up, but usually there is some way out of the middle of the screen. Sometimes the Grunts will appear to cheat and jump on you right away. The Grunts "jump" instead of walking smoothly so sometimes they move right on top of you before your first shot hits them. If necessary, don't move until your first shot kills the Grunt in your way.

If you get really cocky, try your luck at difficulty level 9. The Tanks are unbelievably fast even on wave 7. On a normal setting, once you can handle each of the different waves after wave 28, you are ready to play indefinitely. You are a true Robotron here if you can survive all 255 waves (about 7,000,000 points). Wave 256 is wave 1 again so it's like starting over with whatever lives you have built up. At that point, it's just a matter of endurance.

31
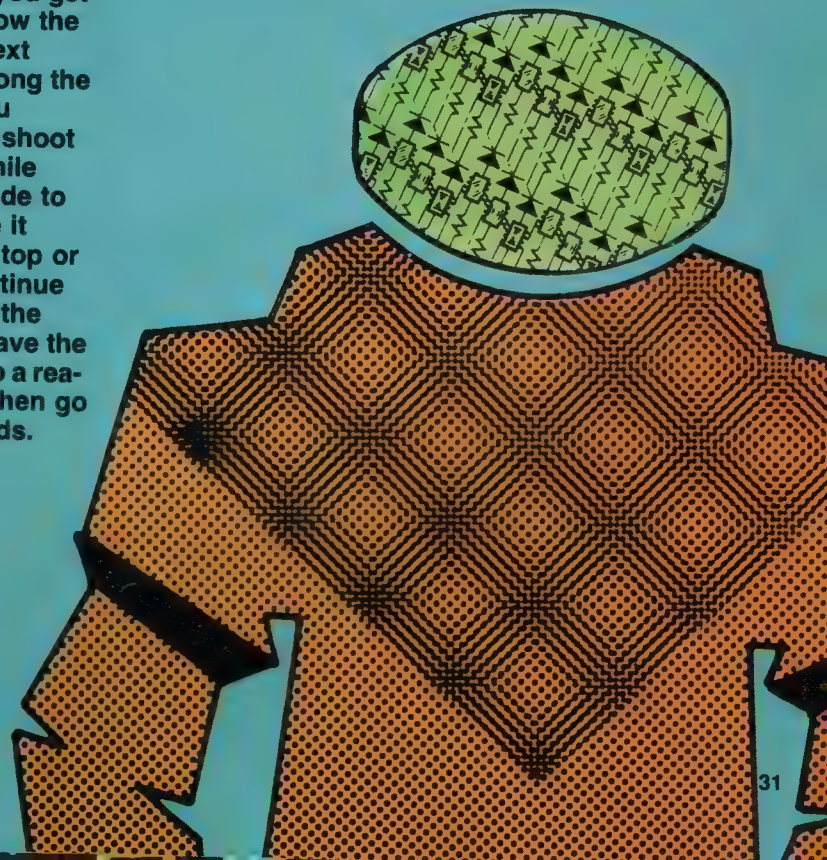
SINISTAR

In the midst of all the cute character games that have come out in the past two years, Sinistar is one of the only new games to provide the intense, fast-paced action found in older classics like Asteroids and Defender. Its spectacular effects — flashy explosions and roaring speech sounds — are usually the first things to grab a player's attention, but Sinistar has more to it than impressive sights and sounds. As in previous Williams space games, the player has enough firepower to get out of almost any situation, so that even the most overwhelming predicament doesn't seem unfair. And Sinistar's opponents have been given a collective logic that makes them intelligently divide up their responsibilities.

In most video games, each type of opponent has a predictable characteristic behavior. In Defender, for example, Landers will always look for Humanoids to pick up and Mutants will always hunt your ship. But in Sinistar, the Workers and Warriors have many different tasks to perform: mining crystals, building the Sinistar, guarding the Sinistar, attacking your ship, etc. These tasks are divided up among the available Workers and Warriors according to a complex allocation scheme whereby some opponents are always working on each task, but certain tasks (like attacking your ship) have a higher priority. As a result of this, you can never predict the behavior of an individual Worker or Warrior, because he may be reassigned to a new job at any time. You can only be sure that, like neurons, ants, and (supposedly) humans, their collective behavior will be consistent with their collective goals.

Your goal, on the other hand, is simple: destroy the Sinistar before it destroys you. The Sinistar is a large silver and red face with devil-like horns that will chase down your ship and — literally — eat it. It is constructed one piece at a time by small red bugs called Workers. Workers assemble the Sinistar from crystals that they find floating in space.

Crystals don't start out floating in space; originally, they are buried deep within the many Planetoids drifting through space around you. They can be mined (broken loose) by firing into the Planetoids. Workers can't mine crystals themselves, so they wait for you to do it and then try to steal the crystals before you can get to them. To prevent the Workers from stealing crystals, you can either shoot them for 150 points apiece or simply push them out of the way (your ship is not affected by running into them). Even if a Worker manages to steal a crystal, you can still recover it; just shoot the Worker when he is flying away with the crystal, and the crystal will be left behind after he is destroyed. It will still be moving with the Worker's original velocity, however, so it may not be worth the trouble of chasing it down. If you do recover it, you'll receive 200 points, but following a single crystal all round the universe — when you could be mining more — is definitely a rookie maneuver.

The Sinistar is built one piece at a time by the Workers. Each time a piece is added to it, you will hear a clanking sound. After 20 pieces have been assembled, the Sinistar is complete and roars, "Beware — I live." That's your final warning to stock up on Sinibombs — the next time the Sinistar speaks, he will attack. He can fly much faster than your ship, so it won't do any good to turn and run.

Other than the Sinistar, the only dangerous enemies are the blue, octagonal Warriors, which have a white gun turret in the center. Although they harmlessly bounce off your ship in a collision (like Workers), they can shoot at you and have fairly good aim. They will fire more and more as the game progresses, so shoot them as soon as they come on the screen — they don't start firing for up to one second, and you can often eliminate them before they get a shot off. Warriors are worth 500 points.

SINISTAR
15,000 points

PLAYER SHIP

WORKERS
150 points

CRYSTALS
200 points

WARRIORS
500 points

PLANETOIDS

Since Sinistar is basically a shoot-em-up game, there are not specific patterns or strategies that work well for all players. There are, of course, basic priorities that you should follow—and these are discussed below—but the important thing is to have a firm understanding of how the elements of the game interact. Sinistar is too complex to be approached with the "shoot anything that moves" approach that works so well in simpler shoot-em-up games.
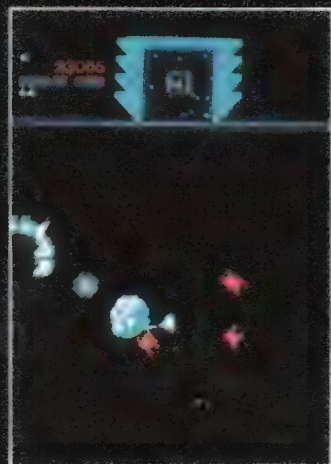
Mining for Crystals in the first zone.

The only dangers to your ship in Sinistar are the Warriors (described below) and the Sinistar itself. The Warriors will try to shoot you while you're mining crystals, but they can be quickly destroyed with the fire button. The Sinistar, on the other hand, can only be destroyed by a direct hit from a Sinibomb on every piece of it. This is the main goal of the game, but before discussing it let's take a look at the controls and the screen.

Sinistar's controls are very simple and very sensitive. A 49-direction (7 x 7) joystick controls your velocity and acceleration, and two buttons are used to control firing and Sinibombs. (The buttons are provided on both sides of the joystick, for right- and left-handed players.) The fire button is used to destroy the Sinistar. Continuous firing is available if you hold the button down, but you can fire faster manually if you're willing to work at it. Because of its sensitivity, small movements of the joystick will give you the best control of your ship. If you move too quickly or abruptly, you'll just be fighting against your own momentum. This is particularly important when mining the Planetoids, because the Workers will steal your crystals if you can't pick them up right away.

Sinistar is a scrolling background game. This means that the background moves (scrolls) past your ship as you fly, and the ship itself stays in the center of the screen. The main screen shows what is happening nearby, and a radar scanner at the top of the screen shows what is happening in a much larger area of the universe. Planetoids, Workers, Warriors, and the Sinistar all show up on the radar, but most players only use it to locate the Sinistar. Even the radar scanner doesn't show the entire universe —the entire universe is almost 10 minutes' flying time across, and wraps around at the edges like Asteroids.

There are many things to

keep track of in Sinistar. To help you with this, the message area (just below your score in the upper left corner) flashes warnings and news of important developments. A beeping sound will tell you when a new message appears. And just above your score, two rows of small circles keep track of how many Sinibombs (crystals) you have collected.

Chasing down a loose Crystal.

To mine crystals, you must shoot the Planetoids. Each shot imparts a certain amount of energy to the Planetoid, making it shake vigorously. Once a Planetoid has absorbed

enough energy from your shots, it will begin emitting crystals and then continue emitting crystals as long as you keep the total energy of the Planetoid above a certain threshold. There is no limit to the number of crystals that can be mined from a single Planetoid, but the Planetoid can be accidentally destroyed if you fire into it too rapidly; it will simply absorb too much energy and shake itself apart. Five points are awarded for destroying a Planetoid, but it's usually better to save them and mine the crystals.

The Workers' main objective is to build the Sinistar, and the Warriors' main objective is to destroy your ship. But, as explained on page 32, an individual Worker or Warrior can be assigned one of many tasks to help achieve these goals. Workers will either (1) hang around your ship and wait for you to mine crystals; (2) hang around Warriors that are mining crystals (yes, Warriors can shoot Planetoids and

mine crystals); or (3) pursue free crystals. Once a Worker has gathered a crystal, his highest priority then becomes transporting the crystal back to the Sinistar. Warriors also have three main jobs to do: (1) mine crystals; (2) guard the Sinistar; and (3) attack the player (top priority).


Fighting off an attacking Warrior.

Once you have collected enough crystals to destroy the Sinistar—i.e., you have more Sinibombs than the Sinistar has pieces—move towards it and get ready to release some of your bombs. When you hit the Sinibomb button, a bomb

will drop from your ship and head straight for the Sinistar. (When you don't know where he is, following a bomb is a good way to find him.) If the Sinistar is off the scanner or the bomb hits a Planetoid, Worker, or Warrior, a "Sinibomb Intercepted" message will appear in the message area, letting you know that the Sinibomb never reached its destination. Workers and Warriors try to throw themselves into the path of a Sinibomb, and Warriors even shoot at the Sinibombs, so long shots are often intercepted.
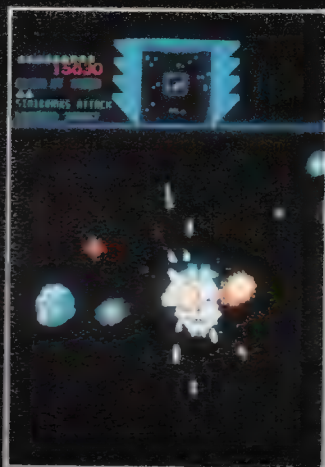
Blasting away at the Sinistar.

A hit on the Sinistar destroys one section and is worth 500 points. There are 13 sections in a whole Sinistar (12 pieces and the face), so it takes at least 13 Sinibombs to destroy it. When the Sinistar is being built, however, it is assembled from 20 pieces; after it is complete, the seven pieces that make up the face combine into one section. The face section will then be the last one to be destroyed, and is worth 15,000 points. If you run out of bombs before finishing off the Sinistar, the Workers will rebuild it while you're collecting crystals. (The one exception to this is the first wave, where the Sinistar is only built once.)
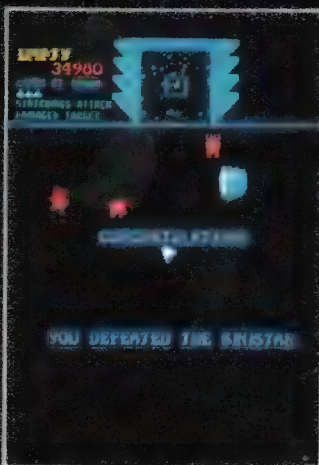
Warp to the Worker Zone.

After the Sinistar is destroyed your ship is warped to another Zone, where a new Sinistar will be built. (When you first appear in a new Zone, the Sinistar will be straight ahead, about two scanner widths away.) After the first Zone, the Zones repeat in a group of four: Worker Zone, Warrior Zone, Planetoid Zone, and Void Zone. The

Worker, Warrior, and Planetoid zones have extra Workers, Warriors, and Planetoids, respectively. The Void Zone has very few Planetoids, and is the hardest of the zones. With each repeat of the group of four, the characteristic traits of each zone are exaggerated. For example, the Warrior Zone has even more Warriors the second time around, and the Void Zone has even fewer Planetoids.

There are many different ways to play Sinistar, so we asked Noah Falstein, Sinistar design team leader, to explain his approach. According to Noah, "Mining crystals effectively is the key to good playing. Use subtle movement of the joystick; its 49-direction control is most effective that way. Also, you should be very careful of the Warriors' shots— that's what kills most players, and not the Sinistar itself. Here's how we (the Williams designers) play: start out by mining crystals like mad. Then, use a bomb to find the Sinistar (drop a bomb and watch which direction it goes). Go to him and blast away a few pieces for extra points, and then go fill up on bombs before finishing off the Sinistar with a volley of bombs. That way, you can enter the next Zone with plenty of bombs. This is a good trick for getting through the first Worker and Warrior zones. Then, on the Planetoid Zone, you can take a breather because there are so many Planetoids. Bomb the Sinistar for extra points, and save bombs for the Void Zone, which is really tough."

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Conceived as a feature-length film, Midway's Tron is a rare game that successfully made the transition from silver screen to the video screen. The action is based on a classical theme of good vs. evil, pitting our hero Tron against the villain Sark and his Master Control Program. You must guide Tron in battle against four formidable foes: Tanks, Light Cycles, Grid Bugs and the central power of evil, the Master Control Program (MCP Cone). All four game screens are contained in each wave.

The Grid Bug screen is the easiest of the four. It also gives you the best opportunity to accumulate maximum points. The timer on the Grid Bug screen is the same for all waves. You have about 30 seconds (1000 time units) to kill as many Grid Bugs (50 points each) as you can before your time expires. But don't be greedy! When the timer falls to 100 time units (about three seconds left) you will hear a loud warning sound.

As soon as you hear the warning, guide Tron to safety before it's too late. The number of time units left on the timer after successfully completing the screen will be added to your score. Remember this and you won't have to worry about looking at the timer in the center of the screen. Concentrate on the main objective: zapping Grid Bugs.

The MCP Cone screen gives you a prime opportunity to elevate your score with minimum risk. As the MCP Cone descends on you, maneuver for position while firing continuously at the MCP Blocks (25 points each). Blast your way through the MCP Blocks and enter the top portion of the Cone (1000 points for entering the Cone) without coming into contact with any Blocks.

On the first wave, you will face a slowly descending Cone three MCP Blocks

deep. This rotates from left to right on descent. Clearing all the MCP Blocks before entering the top portion of the cone earns you a 1000-point bonus. In the advanced cone waves, the speed of rotation and speed of descent will be increasing. The direction of rotation also increases —some Cones rotate from right to left and they become thicker.

The Light Cycle screen is a difficult one to master and a little memory work helps here. Push the joystick and trigger full throttle forward as soon as you see the screen— before the Light Cycles race towards each other. In this way, you will begin each screen the same way.

Run your patterns with the trigger fully depressed for maximum speed of your Light Cycle (the blue one). As soon as each pattern is completed and all enemy Cycles are trapped, release the trigger and simply guide your Cycle at slow speed to avoid collision with the wall and Light Cycle paths until all of the enemy Cycles finally crash. Concentrate on guiding your Light Cycle to wittingly trap all enemy Cycles. You can move your Light Cycle on the grid board in the normal four directions as the enemy Light Cycles react to your movements.

The Tank screen is perhaps the most difficult one to master—it takes three shots to destroy each enemy Tank while only one enemy shell is enough to wipe you out. You have the advantage of rapid fire and live bank shots.

As in the Light Cycle screen, push the joystick full throttle forward as soon as you see the screen and always start your Tank in the same direction. Rotate your Tank gun while your Tank is moving. This keeps you in position for rapid fire. Also keep in mind that you can position your Tank halfway out in any aisle without getting fired upon—just make sure you don't cross that halfway line. You must move and fire fast.
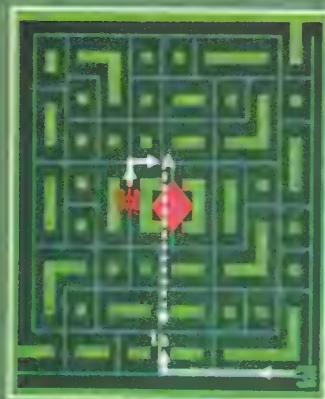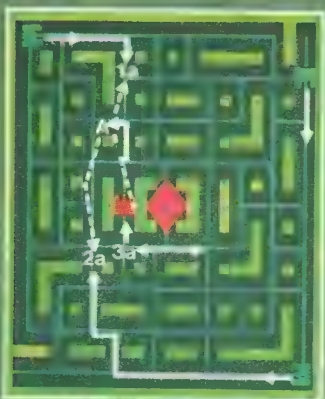
TANKS

LIGHT CYCLES

GRID BUGS
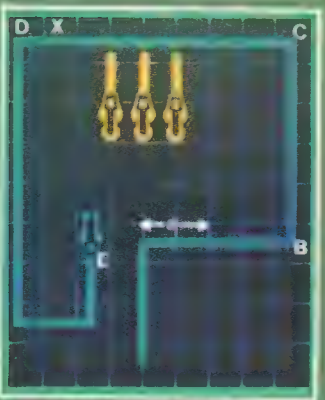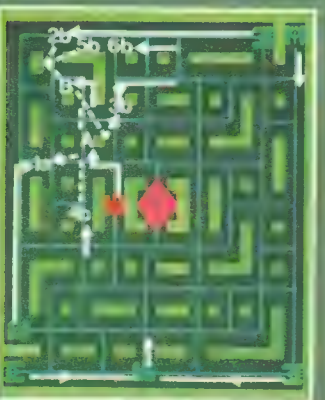
THE GRID

RECOGNIZERS

MCP CONE

Wave 1 TANKS

Wave 2 TANKS

Wave 2 LIGHT CYCLES

Wave 3 TANKS

Your objective in the Grid Bug screen of each wave is simple: zap the bugs. Get in the habit of maneuvering Tron in position close to one of the side entrances early in the screen while simultaneously killing Grid Bugs. But as soon as you hear the warning, guide Tron into the MCP Cone. This strategy applies to all the waves.

The advanced Cone waves are trickier to master as the pace increases. But in these screens you are compensated with more rapid fire. To enter the top portion of the Cone use your fire wisely. Move Tron against the direction of the Cone's rotation while firing upwards continuously. After blasting an initial pathway, gradually move in the same direction of the rotation and finally up to the top portion of the descending Cone while all the time firing behind you against the onslaught of the MCP Blocks. Fire as fast as you can while guiding Tron to safety into the top of the Cone.

Because of the complexity of the patterns for winning at the Tank and Light Cycle screens, the directions here closely follow the diagrams shown. The letter subscript for each Tank indicates the position from which you hit it. For example, in the first screen depicted, Tank 1a is hit from position A.

WAVE 1
In the beginning Tank screen, move to A and fire through the center partition. Tank 1a cannot fire through the center partition. In the Light Cycle screen (not shown), begin at the bottom of the screen and travel to the center. Turn left and then right to travel to the top of the screen to circle the enemy Light Cycle. Pass around it so you can let up on the trigger as you pass it by. If you go as far as the top wall, keep the trigger fully depressed as you travel to the bottom of the screen again and make two right turns to return to the top to trap the enemy Cycle.

WAVE 2
Move to A to dispose of Tank 1a. Rotate your gun to blast 2a with a bank shot. Wait in position A for 3a to approach and fire when in range. Do not go all the way to line (a) in the Light Cycle screen or the pattern will not work. Break off at C. Then let up on the trigger at X to break off at the wall (D) at a slow speed. Complete the route to E.

WAVE 3
Begin the Tank screen by moving to A. Hit 1a, then go to B and eliminate 2b. Blast 3b, 4b and 5b. Wait in B and hit 6b as it approaches. In the Light Cycle screen, break off at the solid line (A) and the wall (B). A three-way crash of all enemy Cycles will take place by the time you reach C. If you miss the solid line at A, box yourself in (as indicated by the dotted line) to get out of the way.

WAVE 4
In this Tank screen, eliminate 1a from A and proceed to B. Blast 2b and 3b, then move to C. Hit 4c and 5c, then move to D and wait for 6d. Don't go all the way to the wall in the Light Cycle. If you miss the solid line (BC) at B, the pattern will take
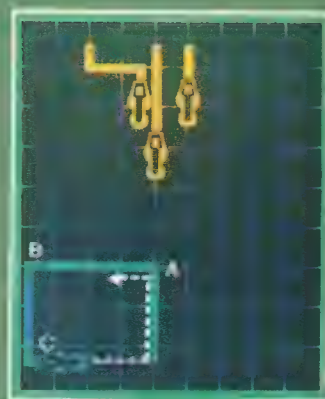
Wave 3 LIGHT CYCLES
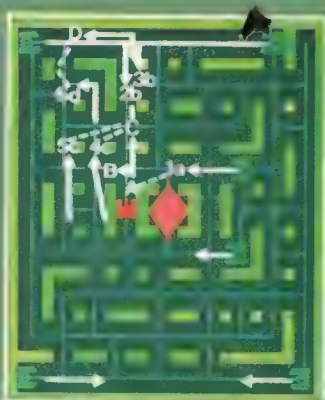
Wave 4 TANKS
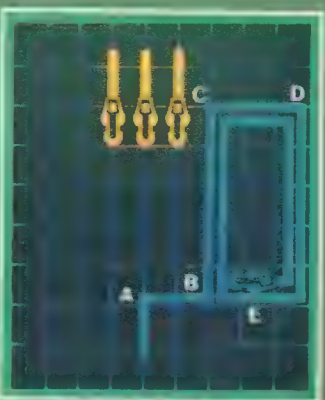
Wave 4 LIGHT CYCLES
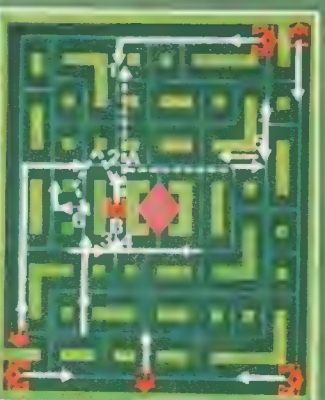
Wave 5 TANKS
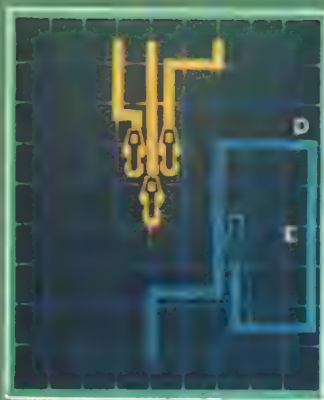
Wave 5 LIGHT CYCLES

Wave 8 TANKS
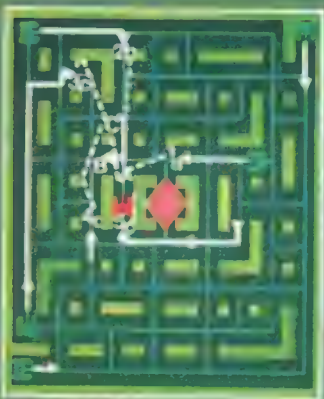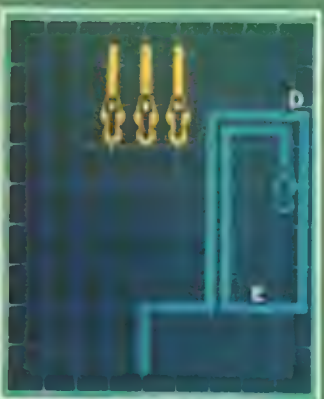
Wave 6 LIGHT CYCLES

Wave 7 LIGHT CYCLES

longer but still work if you box yourself in. Let up on the trigger at E.

WAVE 5
Here, Tanks are replaced by red Recognizers. These do not fire shells, but move faster than the blue Tanks. Do not move until you have shot 1. Hit 2 while moving downwards, then rotate your gun 180° and fire at 3 and 4 while moving back up to A. Hit 5 from A and move back to B to get 6. In this Light Cycle screen, go all the way to the wall (D). If you miss, correct so you are against the wall as soon as possible. Let up on the trigger as soon as you are running down wall E, and continue at a slow speed.

WAVE 6
Begin the Tank screen by hitting 1a from A and then go to B. Blast 2b, then move to C. Hit 3c and 4c, then wait in C to get 5c as it approaches from below. The Light Cycle screen is the same as in wave 4, except the Cycles travel faster. There is a critical move off D — leave one space next to the wall and release the trigger at E.

WAVE 7
The Tank screen is the same as in wave 5. The Light Cycle screen is the same as well, except the Cycles travel faster. Go to wall D and release your trigger at E.

WAVE 8
The Tank screen is a repetition of wave 4. The Light Cycle screen is repeated from wave 6, but the Cycles travel faster.

WAVE 9
Have your joystick forward before the Tank screen begins. Move to A and dispose of 1a. Then proceed to B and fire down on 2b and fire up on 3b. Go to C to get 4c and 5c as they approach. The Light Cycle screen is similar to the one in wave 3. Break off just before the solid line at A, run to the wall (B) and form a box at the solid line at C. Release the trigger at D to close the box.

WAVE 10
The Tank screen in wave 10 is the same as wave 3, except the Tanks move faster. Have your joystick in a forward position before the screen starts. In the Light Cycle screen, break off at the solid line at A and run to wall B. Move to the back wall (line CD) and release the trigger at E after breaking at D to close the box.

WAVE 11
Have your joystick forward before the Tank screen begins. This screen is the same as wave 6, but the Tanks move faster. The Light Cycle screen is the same as in wave 8.

WAVE 12
Both the Tank screen and Light Cycle screen are the same as wave 7.

WAVE 13
The Tank screen here is the same as in waves 4 and 8 except the Tanks move faster. Have your joystick forward before the screen starts. The Light Cycles are a repetition of wave 8.

FUTURE WAVES
At wave 14, the Tank screens and the Light Cycle screens begin a regular repetition. Screens 14 through 18 are the same as waves 9 through 13.
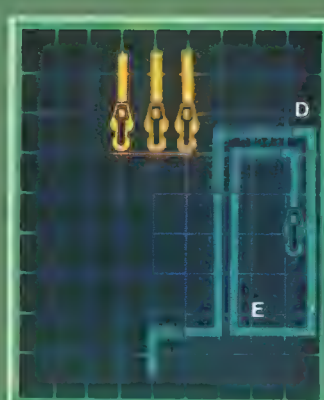
Wave 8 LIGHT CYCLES
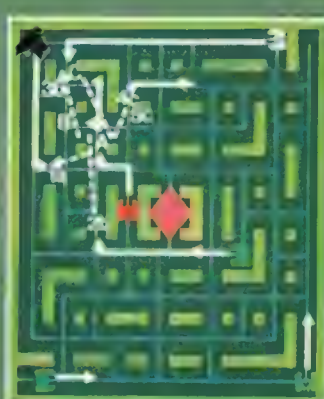
Wave 9 TANKS
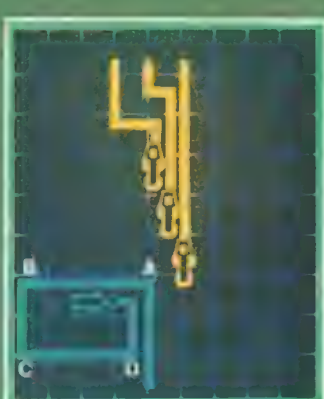
Wave 9 LIGHT CYCLES

Wave 10 LIGHT CYCLES

XEVIOUS

Xevious is one of those rare games that is able to combine excellent graphics and sound with fun and challenging game play. The graphics are as good as Zaxxon's or Tron's, but the game play is much better. The basic concept is simple, as in all shoot-em-up games — try to stay alive as long as possible, while racking up points by blasting anything that gets in your way. But Xevious adds a few new twists that make it far more interesting than a simple shoot-em-up.

The basic premise of Xevious is to fly a Solvalou spacecraft over various landscapes while 32 different enemies try to destroy you from the ground and air. The Solvalou can fly anywhere on the bottom half of the screen, an advantage when dodging enemy shots. Your spacecraft is equipped with two weapons: a fire button, which shoots missiles straight ahead to hit air targets, and a bomb button, which drops powerful bombs on the ground targets. A bomb-sight moving across the screen in front of your ship shows where each bomb will land. If the cross hairs are over a ground target, the radar glows bright red.

Several types of metallic enemy crafts will attack from the air, each with its own method. The first to appear are the rings, your weakest enemy. Often, they won't even shoot at you, making them easy targets for your missiles. The evasive sting-ray shaped ships are the most difficult to hit and they fire several shots at a time.

There is one type of flying obstacle that can't be destroyed by any weapon. The flying shields, rotating mirror-like walls that float through the air by the dozens, create a mobile obstacle course for your ship and deflect your shots away. Ships flying around the shields can be very dangerous; they will be protected from your shots.

The ground targets are pyramids or circular domes that attack by shooting up at you. They always appear in the same places, so anticipating their location is very helpful. Destroying them is important because ground targets are worth much more than air targets.

There are two types of moving ground targets: Mobile Ground Bases and Tanks. Mobile Ground Bases always appear in the same places and always move in patterns. They can and will shoot at you, so destroy them as soon as possible. Just place your bombing target slightly ahead of them in the pattern and drop a bomb.

Tanks behave a little more intelligently than Mobile Ground Bases. They only move north and south across the screen, but they sense your bomb dropping and react to it. They won't shoot at you, so they're
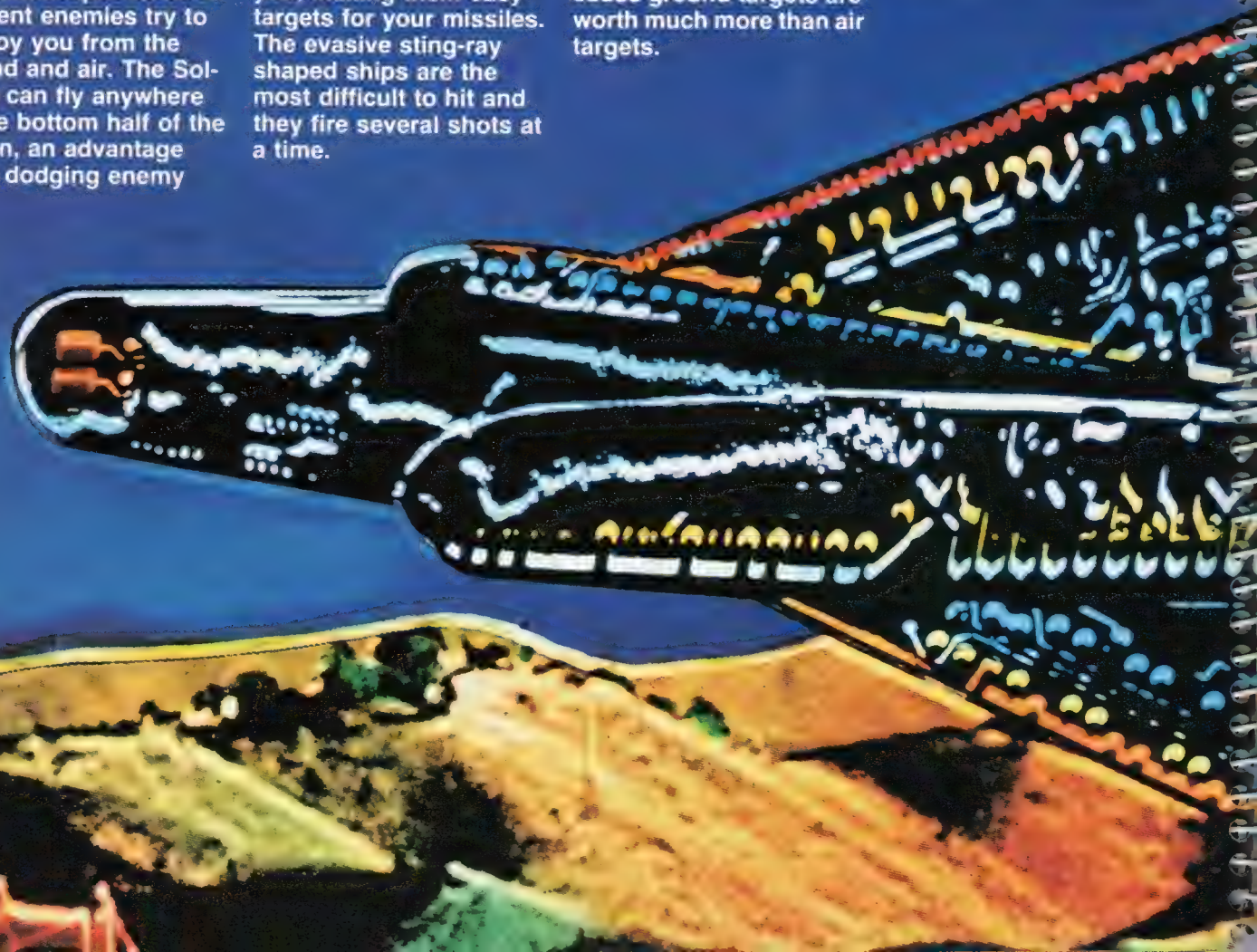
nothing more than a distraction and cheap points. If you must destroy them, use two bombs. They react only to one bomb at a time, and will move right into the second one.

The last type of ground target is underground domes. They are completely hidden from your view, and can only be destroyed by two bombs. The first brings the dome to the surface, and the second destroys it. Underground domes don't fire at you, but destroying them is worthwhile—you

get 2000 points for bringing one up, and 2000 more for destroying it.

The most awesome of the Xevious forces is the immense Mother Ship. A low hum warns you of its approach. The Mother Ship flies at a lower altitude than your Solvalou, so firing at it is useless. Only a direct bomb hit on one of its glowing hatches will do any damage.

Black balls are the last—and perhaps the most annoying—Xevious adversary. There are three different types and they appear on the screen and then explode into bullets if you don't destroy them quickly enough. The first

type is the smallest and most troublesome. These appear out of nowhere and then disappear quickly, leaving bullets all across the screen. The larger black balls appear later in the game. One type stops near the bottom of the screen and explodes into a semicircle of shots, which are hard to avoid because they appear so suddenly. The other type of black ball is the largest and most devastating. It stops higher up on the screen and then explodes, spraying shots in a complete circle. The only effective way to deal with any black balls is to shoot them before they explode.

In addition to all of these various types of opponents, you have one other concern in Xevious —the weather. Periodically, you will encounter a snowstorm, where small crystals fly diagonally through the air. These crystals can destroy your ship, so stay near the bottom of the screen and shoot any crystals that come toward you. The storm never lasts long, so just try to survive it, rather than chasing down the crystals.

SOLVALOU

ANDOR GENESIS MOTHER SHIP
4000 - 8000 points
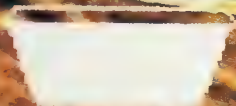
GARU ZAKATO ENERGY BOMBARDERS
500, 1000 points

SOL CITADELS
4000 points

ZOSHI DEATH SQUAD
150 points

DEROGRAM ROVER
800 points

BACULA RESISTOR SHIELDS

Some of the best—and most important—features of Xevious are carefully hidden in the game. Secret targets hidden at certain points in the terrain can earn you extra turns or thousands of points. These targets always occur in the same places, but the only clue you'll have to their position is a red glow in your bombing sights when you're directly over them.

One type of hidden target is the flags. Each flag lies along a horizontal line across the terrain, and can only be uncovered by dropping a bomb directly on it. Since the flags are not always at the same points on the lines, you must drop bombs all across the screen to find them.

When a bomb hits a hidden flag, the flag will suddenly appear with a small S next to it. Exposing the flag earns you 1000 points, but the real value of the flags comes when you pass over one —an extra turn is awarded for each flag you pass over.
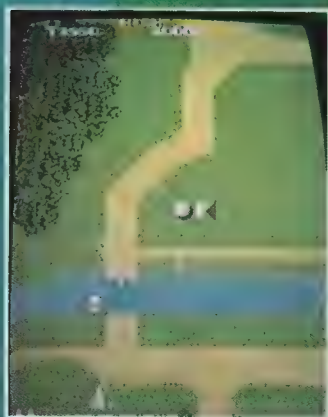
The first flag in the river.

The first flag can be found along the leading edge of the river shown above. It usually is hidden in the left half of the screen, so start bombing in the center and move

out to the left. Drop a bomb every ½" until you see the flag, and then pass over it.
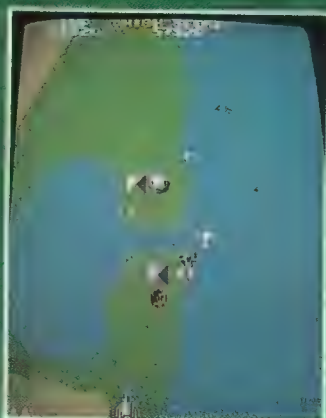
The second flag near the inlet.

The second flag lies along a line through the mouth of the inlet shown above. It is usually found in the right half of the screen, so start at the center and bomb to the left until you uncover it.

The third flag at the pier.

The third flag occurs in the large ocean after the Mother Ship. It lies along a line through the end of the longest pier. It can be anywhere on this line, so start bombing at one edge of the screen and continue all of the way to the other edge. If you drop a bomb every ½", you'll have just enough

time to search the entire width of the screen before the scrolling action moves your Solvalou past it.

The fourth flag below the tail feathers of the bird.

The fourth flag is hidden at the bottom of the tail feathers of the bird shown above. The bird shows up in the terrain during the second set of rotating walls.

Another type of hidden target is the Sol Citadels, which are worth up to 4000 points each—2000 points for uncovering one, and 2000 more for destroying one. Like the flags, Sol Citadels will cause a red glow in your bomb targets even though they are not visible on the screen. A direct hit by a bomb will uncover a citadel, and another bomb hit will destroy it.
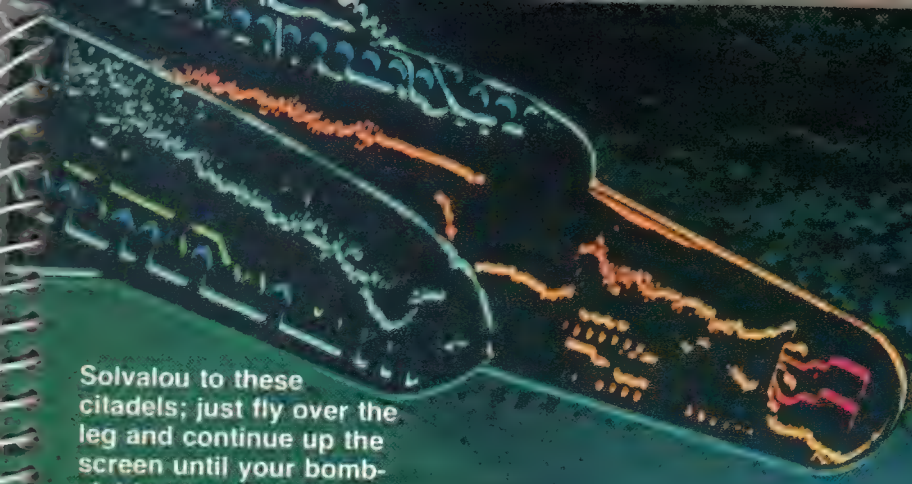
First group of four Sol Citadels.

The first group of Sol Citadels can be found in the small clearing shown above, just before the second Mother Ship. There are four citadels in this group, so it's worth 16,000 points. A crystal snowstorm always occurs at this point in the game, so take that as your cue to watch for the telltale glow in your bomb sights. When you reach the citadels, drop four bombs to uncover them and then four more bombs to destroy them.

The only group of eight Citadels.

There are eight citadels in the second group, which occurs just after the third large bird that appears in the terrain. You can use the bird's foot and leg to guide your

Solvalou to these citadels; just fly over the leg and continue up the screen until your bomb-sights glow. This will be the lower left citadel in the group. Drop a bomb on this one and then move to the right to find the other seven.

It is not possible to un-cover and destroy all eight citadels in this group before they scroll off the screen, so you must decide how many to attempt. You can either uncover all eight and then bomb as many as possible (up to four), or uncover six citadels and destroy all of them. Either one of these approaches will earn you up to 24,000 points, the maximum possible on this group. Don't be discouraged if you get less than this total; it's very hard to get 24,000 on this group.

The next group of Citadels.

The next group of citadels is much easier. There are only four again, and they come at the end of the third set of flying shields (rotating walls). Watch for where the two

roads come together just before the forest, and drop your bombs along the top edge of the slanted section of road-way. As in the first group, uncover all four citadels before destroying them.

The last group of four Sol Citadels.

The last group of Sol Citadels is hidden along the left edge of the screen near the first river. The best way to antici-pate the approach of this group is to watch for a conspicuous formation of defense sites and domes that comes shortly before it. The domes and defense sites are clustered in two groups of four along both sides of the road shown above. This is a very dangerous area — the defense sites fire rapidly — so be careful not to forget about the Sol Citadels because of all the other action on the screen.

After the fourth group of citadels, your score will be over 300,000 points. This brings you close to the end of the terrain, which occurs around 400,000 points. After the end of the terrain, the game starts over again with all of the hidden targets in the same loca-tions again. But before you can go back to the beginning, you must pass through the biggest challenge in the game — four sets of defense sites and domes that will at-tack you with a barrage of shots that is almost im-possible to survive. Al-though the folks at Atari probably thought this section was so hard that players would never get through it, it is possible to survive if you plan ev-erything out.

Start with your Solvalou all the way forward on the screen, so that you can drop back and continue firing when the defense sites come on the screen. This will give you extra time to hit all of the ground enemies that are attacking.

It's best to move through each set of ground enemies in a sweeping motion that brings you to the right edge of the screen and then back to the left. You must slip in between many of the shots fired by ground enemies while you do this, and at the same time you must destroy enough of them to allow you to continue moving for-ward. The sets are a little over one screen length apart, so there is just enough time to get back in position and move forward after each set.

The Andor Genesis Mother Ship.

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FOOD FIGHT

Level 1

Level 2

Level 5, watermelon board.

In Food Fight, the player must maneuver Chuck, controlled by a joystick, from the right of the screen through piles of food, to the left side where he must eat an ice-cream cone. Crossing a pile arms you with one piece of food to be thrown at one of four chefs. The chefs also try to hit Chuck with food, so you must watch them to see if they are picking up anything to throw.

Fortunately you are given a huge advantage in that Chuck can just stand on a pile of food and throw in any direction at machine gun speed. You can actually knock out chefs faster than they can come back on the screen to fight again, although you can only throw until all of the food in a pile is gone.

The chefs — Oscar, Angelo, Jacques, and Zorba — appear from holes in the floor. These holes are actually slits, and some are filled in with a light grey color. These are safe to move across. The others — those that aren't filled in — are dangerous, and you will lose a turn if you let Chuck fall in one.

The first extra Chuck is usually awarded at 25,000 or 30,000 points. (This can vary depending on how the machine is set.) But, of course, Atari has limited the number of extras that you can save.

Point scoring can be high in Food Fight. The first chef hit is worth 100 points, and this increases by 100 points with each chef hit until the maximum value of 1000 points for each chef hit is reached. This makes it well worth knocking off as many chefs as possible before eating the ice-cream cone and going to the next level. Also, each piece of leftover food at the end of a level is worth 100 points, so missed

throws cost you 100 potential points.

The ice-cream cone is worth 500 points times the level number on which you are on. On the first level it is worth 500 points, on the tenth level it is worth 5000 points, and on the 50th level it is worth 25,000 points. The value of an ice-cream cone stops increasing at level 50, so every ice-cream cone thereafter is worth 25,000 points.

The ice-cream cone begins melting as soon as the level begins. If all of the ice cream melts, you will lose a turn, so the best thing to do is to get over to the piles of food that are nearest to the cone and begin hitting chefs. Before the ice cream melts, a warning signal will let you know to eat the cone. Always try to keep a piece of food in your hand when you eat the cone — it will carry over to the next level.
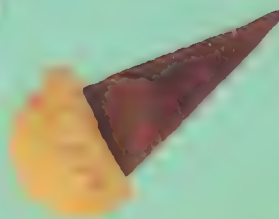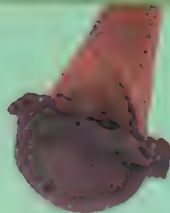
This becomes very important on higher levels where things begin to move really fast, and the chefs can get over to piles of food and become armed before you can. If there is a chef between Chuck and the nearest pile, you can wipe him out with the food you carried in from the last level. Once on this nearest pile, you should knock out the rest of the chefs and use the short time that it takes for them to pop back up through the holes to advance toward the cone.

One thing you should watch closely for is Oscar, the chef with the large rounded hat. He tries to get between Chuck and the cone, and if he manages this there is no way around him — other than to plaster his face with a cream pie or some hamburger. The other chefs, however, aren't as clever as Oscar and tend to get in behind you or trap you.

As with many Atari games, you can choose which level you wish to start on. By beginning on the first level you can play a little longer and get used to the game. On level 1 there are only two chefs and they won't pick up any food, so you can run around a bit and pick off these two at will. Things move slowly on level 1, so you probably won't accumulate much of a score there.

The second level has three chefs, and they can carry food and throw it. Starting with level 3, all four chefs are present, and they can all carry and throw food.

Level 5 is a watermelon board. Watermelons have an interesting property; Chuck can stand on one and throw watermelon pieces all day — the supply never runs out. This is an excellent board to knock off as many chefs as possible. There's almost enough time to get

an extra Chuck on a watermelon level, but it's not possible, so it's not a good idea to stay on a watermelon board hunting 1000 point chefs. However, if you have the maximum number of Chucks in storage and can win one more by playing the watermelon level one more time, it's worth killing off a Chuck to gain the points. But with extra Chucks awarded every 100,000 points or more, this can't be done indefinitely.

The only other food to look for is piles of green peas. Try not to use the peas if it's possible to use something else, because peas spread out when thrown and won't go as far as the other foods. Watermelons also begin to show up on boards with other food (not just on watermelon boards), so always look for watermelons to stand on. Beware of Oscar and always eat your ice cream.

CHUCK

ICE-CREAM CONE
500 · 25,000 points

OSCAR
100 · 1000 points

ANGELO
100 · 1000 points

JACQUES
100 · 1000 points

ZORBA
100 · 1000 points

FOOD
100 points

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FRONT LINE

The idea behind Front Line is simple: maneuver your soldier through a battlefield, fighting off enemy soldiers, boulders and tanks as you go, until you reach the enemy fort.

Your soldier is outfitted with a gun, grenades and helmet. The gun is controlled by an eight-direction knob. When your gun is aimed where you want, push the knob and the gun will fire. This knob also controls the direction in which a grenade will be thrown, although another button controls the actual throwing of these grenades.

The game begins with your soldier in the middle of a wide pathway. There are some bushes in the way and you cannot go off to the sides. Enemy soldiers approach from the forward edge of the screen. As your soldier moves forward, you should have the gun aimed toward the top of the screen, killing enemy soldiers as they appear. Watch out for land mines throughout the game.

If a bush lies between you and the enemy soldiers, launch a grenade in their direction. Sometimes an enemy soldier will make a break for the side of the screen and hide behind the bushes there. Use an angle shot to kill him if this happens.

Sometimes the enemy fire will halt your forward advance. When this happens, a boulder will bound out from one of the sides of the screen and try to crush your soldier. The boulder can be avoided by backing up out of its way or blowing it up with a grenade.

Launching a grenade to kill the enemy.

Coming to the first tank.

Soon you will come to a clearing. Just beyond the clearing there is a tank. Fight your way toward it and stand next to it to draw in the enemy troops. When they are close, jump into the tank with the dual purpose grenade-jump button and kill them.

When all ground troops have been killed, or have run away, your enemies will send in the tanks. The tanks your solider can use are blue and are either small or large. The small tank is fast and can fire rapidly, but the large tank can fire farther and is more heavily protected against enemy attack. If your solider is in a small tank and it is hit, you must jump out immediately to save him. If you've chosen a large tank, you also jump out immediately when shot, but if the large tank was hit by a small one you will be able to jump right back in without it blowing up. If your large tank is shot by a large enemy tank you must leave it and search for another. When you've been forced out of a tank and left to find another, enemy tanks will still attack and you will need to use grenades to blow them up while you are searching.

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At first there are clear sections and grassy patches of ground to drive across. Try to remain on the clear sections, for the tanks are slower and more sluggish when moving across the grass.

Soon you will reach a short grassy section, beyond which the ground is pink and strewn with rocks. The small rocks can be shot, but not driven over. The large rocks will block your shots and also cannot be driven over.
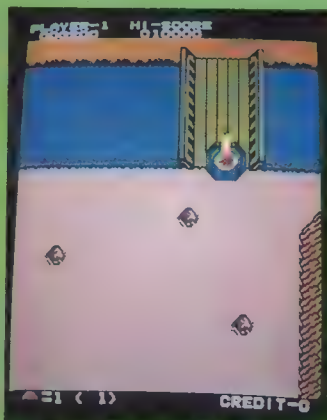
One of the two bridges spanning the river.

Next you will encounter a river with two bridges spanning it. Try to kill the enemy tanks on the other side of the river before attempting to cross it. On the other side are small walls your tank must maneuver through. After a while, the edges of the play field will begin to narrow. When you notice this, move to the left side of the screen and continue forward. The enemy fort is now close at hand. When it comes into sight keep going until your tank is next to one of the small pink brick walls to the left of the fort. This wall will protect you from enemy fire from the fort. Aim down and hunt enemy tanks that enter from the bottom of the screen until your score is over 9000 points. Then let your tank aim straight to the right and throw a grenade behind the walls of the fort. This will get you 1000 points and put you over 10,000 where you earn your only extra soldier.

After this you will begin again on the wide pathway. Because enemies become more valuable each time you blast the fort, it is not practical to hunt enemy tanks the first time through after you have earned your extra solider. You should go at least to the third fort before you start hunting in earnest.

PLAYER SOLDIER

ENEMY SOLDIERS
100 points

SMALL TANKS
100 points

LARGE TANKS
100 points

BOULDERS
100 points

POLE POSITION

Pole Position is the best driving game yet. Its graphics, sound, and driving realism outclass even Turbo. The Fuji Speedway is the setting for an eight-car race with you behind the wheel of a Formula 1 racer. Your goal, as in all driving games, is simple—race around the track as fast as you can. You compete with seven other drivers, but time is your real opponent because the other drivers race like rookies.

The game is divided into two parts: the qualifying lap, and the race itself. The qualifying lap is the most important part of the game, because your qualifying time will determine your starting position for the race. The time needed to qualify is determined by the game's settings (73 seconds is standard). If you don't qualify, you can't compete in the race.

You start the qualifying lap by yourself, but will encounter other cars on the track later. Drive the course just as you would in the actual race, as described below. If you beat the time needed to qualify, a synthesized voice will commend you on your driving skill. Then, depending on your actual qualifying time, you will be assigned a position from first (pole position) through eighth for the start of the race. Earning the pole position (58.5 seconds on a standard machine) is very helpful: it assures you of starting the race in first place, and earns you a 4000 point bonus in addition to the 10,000 points received for the qualifying lap.

Once you have qualified for the race, your car is placed in its proper position at the starting line. The race will last up to four laps (some machines limit it to three), depending on how well you do. As the starting lights count down to green, you should be in low gear with the gas pedal to the floor.

As you accelerate away from the starting line, shift into high gear at around 100 mph. You should then stay in high gear for the entire race, unless you crash and need to start again. Try to move out in front of the pack before the first turn; if you started in back, pass between the cars in front of you.

Go into the first turn on the left side of the track and then cut to the inside. With perfect timing, you can take the first turn at full speed without skidding. As you come out of the turn and pass the Namco sign, you'll see cars ahead of you. Pass them on the shoulder if necessary, but don't slow down.

Next is a sharp right turn marked by a Dig Dug sign, off the left side of the track. Stay to the left so you can prepare for the hairpin turn which follows immediately. It's too sharp to take at full speed, and there are usually other cars in front of you. The best way to take the turn is to cut the corner by driving off the left side of the track, being careful not to hit the Pole Position sign on the left shoulder. If you have trouble with this, the next best approach is to let up on the gas and stay on the road. Never shift to low gear or use the brakes, but you must slow down if you stay on the road; otherwise, you'll slide off the track and hit the Centipede sign on the right side.

The next part of the course is a long, sweeping right turn flanked by numerous signs and billboards. Stay as far to the inside as possible so you can see more of the track in front of you and avoid blind crashes. A Pole Position sign on the right will mark the start of the final straightaway into the finish line.

The entire time you're racing, a timer is counting down how many seconds you have left. If you reach the finish line before your time runs out, you're awarded an additional 45 seconds of racing time to try to complete another lap. You'll continue racing until you fail to complete a lap in the allotted time or you complete the maximum number of laps (3 or 4, depending on setting).

Whenever you play, aim for the perfect game: starting in pole position and driving the entire race without crashing. It takes precision driving and fast reactions, but it can be done. And if you get off to a bad start, try a slow trip around the track to read the colorful road signs — they're hard to appreciate at 185 mph.

Top: Beginning the race.
Middle: Anticipating the big turn.
Bottom: Watch those signs!

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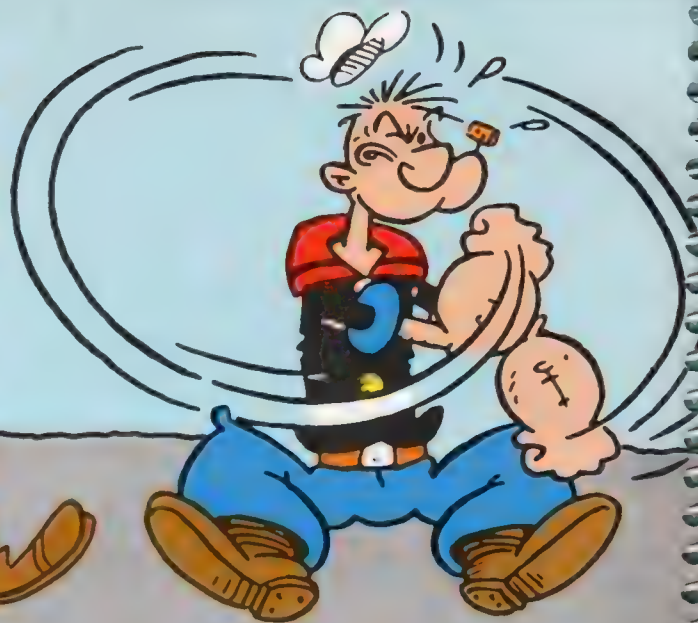
POPEYE

The game of Popeye is an animated competition between Popeye the Sailorman and Brutus. Both of them are vying for the attention of the thin and lovely Olive Oyl. You control Popeye with a four-direction joystick and punch button, and must avoid Brutus and the Sea Hag while pursuing Olive Oyl.

The 4000 point bonus on screen 1.

On the first screen, Olive Oyl stands at the top of the screen and tosses hearts down to the bottom, hoping that Popeye will catch them all. If a heart reaches the bottom of the screen, you have about 10 seconds to pick it up before it breaks, costing you one turn. Try to catch the hearts as high up as possible, since they decrease in value as they get closer to the bottom.

If Brutus harasses you, cross through the edge of the screen from left to right and wait for him to stop directly under the bucket. Hit the punching bag at this point and the bucket will fall on his head, rendering him helpless for a while. This will give you 2000 points and some time to catch a few more hearts.

As in real life (well, cartoon life) Popeye can grow stronger by eating spinach. A red can of spinach moves between the second and third levels of the screen, and you can make Popeye eat it by punching the can. Popeye will then turn red and become more powerful than Brutus for about 10 seconds. If you punch Brutus during this time, he falls into the sea and you are awarded 3000 points.

Brutus will eventually recover, so make good use of this time by catching as many falling hearts as possible. They're worth twice as much when Popeye is under the influence of spinach, so catching some of the higher hearts can really help your score. And because extra turns are only awarded for a very high score (from 40,000 to 80,000 points), you should be as greedy as possible.

Spinach can only be used once per screen, and it is not restored when you lose a turn. Don't use it too early; pick up about two-thirds of the total number of hearts, and let as many hearts as possible fill the air before getting the spinach.

If you're willing to take a risk to get 4000 points instead of 2000, don't use the punching bag right away. Wait until you've punched Brutus (best done while under the influence of spinach), and then position Popeye next to the punching bag. When Brutus climbs out of the sea, he will cross under the bucket on the lowest level. With some practice and timing you should be able to drop the bucket on his head for 4000 points. Note: touching Brutus while the bucket is on his head is not fatal. But be care-ful, because once the bucket comes off he can easily crush Popeye.

To make up for his lumbering slowness, Brutus is capable of throwing beer bottles at Popeye. Rather than avoiding this, you should try to force him to throw bottles as often as possible (he can throw four at once), so you can punch them for extra points. Remember—it pays to be greedy in this game.

The Sea Hag can also throw bottles, although she only throws one at a time. The Sea Hag materializes on the edge of the screen for a moment, chucks a bottle, and then disappears. Oddly enough, she can be on both sides of the screen at once. So if you get caught between two Sea Hags or between Brutus and a Sea Hag, you'll have to be fast on the punch button and joystick to survive.

POPEYE THE SAILORMAN

BRUTUS
2000 - 4000 points

Going after Brutus on screen 2.

Remain on top as long as possible.

across the platform, you should try to punch the buzzard as many times as possible, for 1000 points per punch.

After the ship screen, all three screens are repeated in the same order, but care must be taken because there is a new enemy to be reckoned with — deadly bouncing skulls. The Sea Hag throws skulls out from the upper right corner of the screen, and they must be punched while they are bouncing upward. You must also make sure that no skulls are directly above Popeye, because they drop down a level or two and hit him on the head.

Although the skulls complicate things, the basic strategies described above for the first three screens will still work. Just continue to avoid Brutus and the beer bottles, and stay greedy — it's a long way between extra turns.

OLIVE OYL

HEARTS
50 - 1000 points

Play the second screen much like the first one. Although Olive Oyl is dropping musical notes now, the real difference on the second screen is the layout, with Wimpy on the plank in the lower corner. If Popeye jumps off the second level onto this plank, he will be catapulted up to the third level. With careful timing, you can even make Popeye leap all of the way up to the fourth level, where Swee Pee is waiting on a balloon platform. Touching the bottom of Swee Pee's platform will earn you 500 points (1000 points while you're under the influence of spinach).

The setting for the third screen is a ship, with a sliding platform on the highest level. At the beginning of the board you should be able to slide Popeye across this plat-

form several times, catching the letters of the word H-E-L-P that Olive Oyl is letting fall directly above.

Every time Popeye catches a letter on this screen, one rung is added to a ladder going up to Olive Oyl. When the ladder is complete, Olive Oyl is saved. This is the hardest screen of all, because a large number of letters are needed to finish the ladder and save Olive Oyl. On all screens, Brutus can reach up from underneath or bend down from above to get Popeye. He can also bound down from higher levels to lower ones — be careful that you're not underneath him.

A buzzard will occasionally enter from the left side of this screen. While sliding back and forth

SWEE PEE
500 - 1000 points

SEA HAG

BUZZARDS
1000 points

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TIME PILOT

Time Pilot has you flying through the centuries, fighting enemy aircraft along the way. Time is divided into periods, or eras, each one with appropriate enemies. In all, there are five eras to contend with, beginning with 1910, where the enemies are mere Biplanes, up through the present and beyond to 2001. After a certain number of aircraft within a period are killed, a large Mother Ship distinctive to that time will fly onto the screen. It will take several shots to kill this ship, but when you have, your plane will be transported through time to the next period.

There is a scale at the bottom of the screen that lets you know when you've killed enough of the enemy to expect the Mother Ship. In the 1910 period, your enemies appear as Biplanes, and the Mother Ship is a Blimp. In the next period, 1940, you are battling Prop Fighters and a large Bomber is your ultimate enemy. By the time you reach 1970, you are fighting Helicopters, replaced by Jet Fighters in the 1980 period. Another large Bomber is the Mother Ship here. As you pass into the future, the year 2001 pits you in battle against Flying Saucers, the Mother Ship being an even larger Saucer.

Each period demands specific strategies because the various enemies behave differently.

Flying straight up through the first time period.

Trying to save a Parachute in the 1940 time period.

The Biplanes in the first period can only shoot and bomb. The bombs drop from the Biplanes and fall to the bottom of the screen. A good strategy is to fly toward either of the upper corners of the screen. Since your plane is in the center, you reduce the chances of being bombed and have more time to react to enemies appearing on the edge of the screen in front of your plane.

Watch for formation attacks and falling Parachutes. If all the enemies in a formation attack are killed you earn 2000 points. Parachutes are important: the first is worth 1000 points and the value increases by 1000 points with each one until the maximum value of 5000 points is reached on the fifth Parachute. From that point on, all Parachutes will be 5000 points unless your plane is destroyed or you kill the Mother Ship and go on to the next period.

In 1940 Prop Fighters are your enemy. They can only shoot, so flying toward any corner is good, but the upper corners are preferred because Parachutes fall slowly downwards and this will make it easier to pick them up. Once again you should watch for formation attacks worth 2000 points. Another enemy to watch for in 1940 are the dark brown Bombers that will fly horizontally across the screen. They are worth an easy 1500 points, but remember that it takes three shots to kill them.

In 1970, Cruise Missiles begin chasing your plane.

Flying in circles to kill the Jet Fighters in 1983.

Your mission begins to get dangerous when you reach 1970. The enemy Helicopters are capable of launching Cruise Missiles and since linear flying becomes impossible it is now hard to pick up many Parachutes. The best way to deal with Cruise Missiles is to shoot them. You must be bold when they come in behind your plane and turn around and shoot them. A great deal of circling is needed to survive these later periods.

In 1983 your enemy has developed faster Jet Fighters and more accurate Cruise Missiles, but circling and reversing directions is still the best way to stay alive.

Fighting to stay alive in 2001.

In 2001 you encounter the most hectic of all the time periods. The Flying Saucers have two new types of weapons — one that acts much like a Cruise Missile in that it can change directions, and another that follows straight lines. But both of these weapons can be shot and destroyed. If you survive 2001, you will be sent back to 1910 to do it all over again.

Time Pilot, as with many video games, has a hunting strategy associated with it. You can stay in one time period without killing any of the enemies and continue to pick up Parachutes. The 1940 period is the best in which to hunt Parachutes.

Another slower but safer hunting strategy is to stay on one of the first two waves shooting the planes as they come. When the Mother Ship appears, ignore it and keep going after the planes. This isn't really playing the game, but it's good practice and can last a long time.
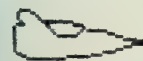

PLAYER SHIP

PARACHUTES
1000 - 5000 points

BIPLANES

PROP FIGHTERS

HELICOPTERS

JET PLANES

FLYING SAUCERS

ZAXXON

Zaxxon is a simple four-part space shootout, but its three-dimensional appearance and colorful graphics make it stand out from other similar games. The three-dimensional movement of your Fighter Ship is unique and difficult to control at first. Once you can maneuver the ship well enough, you can begin to develop "patterns" for each of the four sections. When you can anticipate what is ahead of you and position your ship accordingly, you'll have no problem with any of the enemies. Zaxxon should be played aggressively, especially on the two platforms. The space section is the most difficult and survival is more important than points. Destroying the Robot is easiest with the proper positioning.


In space.

FIRST PLATFORM
The ground targets are always in the same place on the platforms. The only changes are the spaces in the walls. They get smaller as you advance to higher levels, and also change posi-tion. Most players know that firing shots will show you where your ship is headed. This is fine for beginners, but don't depend on looking at your shots on the higher rounds. You have to learn to position your ship just by looking at it in relation to the other objects. If you can do that, you can position your ship quickly and have more time to shoot everything and still get through the walls. There are two ways that your ship can be destroyed. The underground rockets come up through holes in the platform, and the ground cannons shoot you. Running out of fuel or crashing into something shouldn't be a problem after some practice. One simple trick can keep you from crashing into the ground targets.

When you're between the walls, always fly your ship just below the second line on the height gauge. At this altitude, you can shoot everything on the ground, but the cannons can't shoot you. You don't have to worry about crashing into the ground targets even though you can shoot them at that height. You can fly right over them without crashing. The pattern is easy to re-member. Clear the wall, move down to just below the second height line as you move in front of the first ground target, move left and right only to shoot everything on the ground, then get ready to clear the next wall. The only thing you have to avoid is flying into a rocket. The last section is a wide open area with a lot of ground targets. Several Fighter Planes are in this section. The counter for the Fighter Planes starts at 20 at the beginning of the plat-form. The number de-creases each time you shoot one of the Planes on the ground. If you shoot all of the Planes on the ground, you'll have a better chance of getting the 1000-point bonus during the space section.
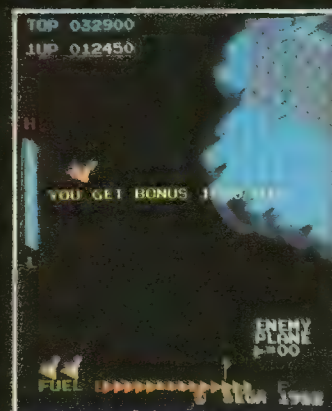
Bonus for killing all Planes.

SPACE
After you clear the last wall of the first platform, you head into space to battle the Fighter Planes. Most of the Planes move in set patterns, but some track your ship and try to shoot it or crash into it. You should try to get out of the space section as quickly as possible by shooting the required number of Planes for the 1000-point bonus. The first four Planes move in a formation. You can shoot them on the bot-tom of the screen. Just after clearing the last wall, move down to the bottom right corner. Move left about an inch and start shooting. The first Satellite comes out just after the four Planes. Shoot it as you move up to the top of the screen. Stay near the center so you have all four direc-tions to move if neces-sary. The ship reacts slowly, so you have to prevent the smart Planes from trapping you in the corners. Once they shoot at you, you have to move immediately to give yourself enough time to escape. If you shoot most of the formation Planes, you can end the section quickly without being in danger. Later on, the

Planes will start entering the screen from behind you. Move to the side and let them come out. If you follow behind the last Planes, you can shoot them while they're still going backwards.


Aligning with the space.

SECOND PLATFORM

The second platform is much the same as the first one, only much easier. There aren't any underground rockets, which were the only real obstacle in the first platform. Use the same technique of staying just below the second height line. Be sure you hit all of the fuel so you have enough to kill the Robot. You should be able to hit just about everything on the ground. With no rockets to worry about, you only have to avoid

crashing into the walls. In the second platform, you have to fly through small spaces in the walls. Once you know where the space will be before you can see it, you can plan ahead and avoid a last second attempt at getting through. It is easier to see your shots reflecting off the bricks rather than the forcefield, so you should always start below the space and shoot off the walls. After you clear the last wall, there are three fuel tanks before the Robot. You should be able to hit all three so you have enough fuel to kill the Robot.
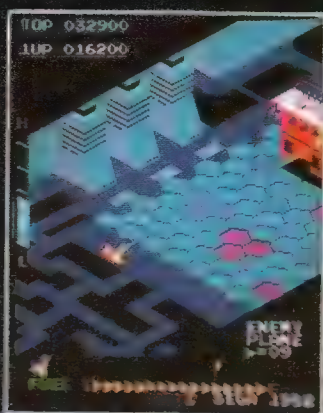
Facing the Robot.

ROBOT

The Robot signals the end of a round. It is

somewhat of a letdown since it's the easiest part of the game. The Robot always appears on the screen in the same spot, so you can be waiting for him. Put your ship 1½ segments up on the height gauge and in the middle of the second hexagon from the left. Start firing as the Robot comes onto the screen and you can score a few quick hits on the Missile. Then just follow the movement of the Robot, keeping a steady stream of shots going towards the Missile. You have to hit it a total of six times to destroy it. You should be able to destroy it before it's launched every time. If it is launched, it lines up directly in front of your ship and flies straight at you. As long as you've hit it a few times early, you still have time to destroy it by firing as fast as you can. After you destroy the Robot, you earn a flag and advance to the next round. If you earn enough flags, the game stops showing them and pleads with you to give up. It really makes you feel like you've beaten the game when it wants you to give up. Have no mercy, keep racking up those points.

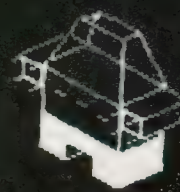PLAYER SHIP

GROUND TARGETS
300 points

FIGHTER PLANES
100 points

SATELLITES
300 points

MISSILES
150 points

ROBOT
1000 points

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ZOOKEEPER

In this game, you (Zeke the Zookeeper) must control a menagerie of wild animals and keep them behind the walls of a zoo. You move Zeke with a four-direction joystick and a jump button. The walls of the zoo are built beneath Zeke's feet as he moves around the outside of the zoo with one cage in the center. In early rounds, the wall is partially built when you start, but in later rounds Zeke must build the wall from scratch.

Zeke's movement on most rounds is restricted to the perimeter of the zoo. Near the top of the screen is a timer which controls a series of bonus objects appearing along the walls. As time runs out the line becomes shorter and it will touch an object placed along it. When it does, that same object appears somewhere along the walls and can be picked up for bonus points. If the

timer reaches the next object on the line before Zeke has picked up the first, the first one will disappear. Besides the bonus objects, there is one other thing that will appear on the walls. This is a net that can be used to capture any of the animals that escape. The net only lasts for a short while, and a warning sound will alert you before it disappears.

Another busy day at the zoo.

At the beginning of the rounds, take note of which direction the animals are moving (clockwise or counterclockwise). Then go the opposite direction, so that they will be coming towards you and you can jump them.

In the first round one animal is loose and running along the walls. If you don't jump it and the animal kills you, you will be given another chance because you obviously need one. It's not a bad idea, then, to pick up some of the bonus objects and then intentionally kill Zeke by running him into an animal. Then you'll get to try the board over again from the beginning and pick those points up for a second time.

Jump on the ledges to reach the top.

The second round is similar to the first; but the third round is a series of horizontally moving ledges. The top ledge does not move, and on it sits Zeke's girlfriend and a tree. A monkey is hanging by its tail from the tree, hurling coconuts into the air. Zeke begins from the bottom and jumps up the ledges until he reaches the top one with his girl on it. Some of the ledges have bonus objects on them, which are worth more as you get higher. Just landing on a ledge will score you points. Make sure Zeke doesn't run into any coconuts, and that when he reaches the top he touches the girl. The round is not over until he does so, and there's still a chance of being hit by a coconut. If Zeke lands right on the girl you won't get points for landing on the ledge; and since it's the highest ledge (and worth the most), you should try to avoid landing right on top of the girl when you get there.

As soon as this round begins, the bottom ledge that goes all the way across the screen begins moving toward the right. If on Zeke's way up you make a mistake and he falls, you have to guide him to one of the lower ledges to save him. If he falls all the way down and goes through the hole that the bottom ledge is creating, you will lose a turn.

On Zeke's way up watch for coconuts. They move very slowly, and if one is bouncing on the ledge that Zeke is on you should move him as soon as possible. If another ledge is passing overhead at this point it is impossible to go up so you should send Zeke down.

The game gives you un-natural control of Zeke's jumping ability—you can direct where he moves even while in midair. Always try to take full advantage of this. On the rounds where Zeke is building walls to cage the animals, the big points come from jumping animals. On higher rounds, millions of points are possible just from one jump. On lesser attacks than this, it's possible to begin the jump, pull back on the handle halfway through, and land Zeke back where he started, still getting the points for the try. And since Zeke is back where he started, he can attempt the jump again.

Climb the last stairs to win a bonus Keeper.

Extra turns can be won on special rounds. Zeke begins at the lower left and you must move him to the right, jumping animals and one cage to reach the stairs. Once up the stairs, go to the left, jumping more animals and another cage to reach yet another staircase. If you get Zeke up these stairs, Zeke's girlfriend is once again saved and you'll receive one extra turn. But if you let Zeke touch an animal on this round you will lose a turn. The object here is gaining a turn, not losing one, so extra care should be taken. Don't get hung up on the cages when trying to jump them. Back up a little and try again.

ZEKE

ZEKE'S GIRLFREIND
5000-20,000 points

ANIMALS
100 - 30,000 points

NET
500 - 15,000 points

It's Saturday afternoon at the local arcade, and you've just dropped in for a quick game of Dig Dug. Both of the Dig Dug machines are busy, so you put up a token on each one and walk over to an open Defender. Waiting for your turn to come up at Dig Dug, you drop a token in Defender and begin idly hammering the controls.

A dozen Defender games later, the same two players are on Dig Dug and you're getting impatient. You decide to go watch them, to see if you can pick up anything from their playing — after all, they've both been on the same game ever since you've arrived.

The player on the left is playing with a set of quick and efficient patterns that keep the monsters at a safe distance. He has just cleared the 125th board, and has a long string of extra turns across the bottom of the screen. The player on the right, however, is still on the very first board. Through some obscure trick (which she refuses to reveal to you) she has managed to rid the screen of monsters without advancing to the next board, and is carving her initials in the dirt.

Obviously, both of these players know the game of Dig Dug very well. They can both make a single game last almost indefinitely, so either one could claim to have mastered Dig Dug. But which player do you want to play like?

If you think that clearing 125 screens is a worthwhile goal, the Dig Dug strategies on pages 4-7 will help you do exactly that, and the comprehensive strategies in the rest of this book will give you the same edge on many other games. But if you're fascinated by offbeat tricks and unusual ways to play, the next few pages are just for you. We have put together a collection of entertaining and useful tricks for a variety of arcade games, and we hope you enjoy them. We've also included an explanation of the byte rollover phenomenon, because it plays such an integral part in many tricks for video games.
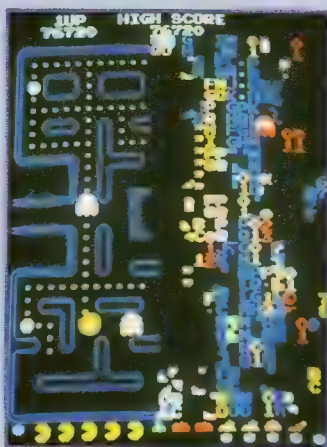
Pac-Man screen as it appears after 255 boards are cleared.

THE BYTE ROLLOVER

If you can clear 255 boards in Pac-Man, you'll get to a board that looks like the one shown above, and your pattern (if you use one) definitely won't work. Is this an intentional deterrent to high scores — as many players claim — or is it just a problem in the game that shows up when you clear 255 boards? To understand the answer to this question, you need to understand the concept of "rolling over" a byte of computer storage.

All players are familiar with the concept of rolling over a game. To roll over a game means to surpass the highest score that the game can register, so that the score goes back to zero and begins climbing again. For example, if the game can only display six digits of score, it will roll over at 999,999 points, because there is not enough room to display a score of 1,000,000 points. What really happens, of course, is that the score continues to climb over 1,000,000 points but only the six right-most digits of the score are displayed.

The byte rollover is exactly the same phenomenon occuring at another level — instead of rolling over the score display, you are rolling over a single byte (or register) of computer storage. In the Pac-Man split screen, for example, the register that stores the board number has rolled over, and the game program thinks that you are on the "0" board. Since the Pac-Man program was not designed to generate a board numbered 0 (it starts at board 1, the Cherry board), it gets confused and generates the mess depicted above.

Because of the way that computers store numbers (in binary representation), a byte of storage rolls over at 255. In other words, when the game machine adds 1 to 255 it gets a result of 0, in much the same way that scoring 1 point when you have a score of 999,999 in Centipede will give you a score of 0. The reason this happens is that the binary representation of 256 is 100000000, and the computer can only see the eight right-most zeros. (Just as you can only see the six right-most zeros when you score 1,000,000 points in Centipede.)

The byte rollover is a common problem in video games. It's the reason that many games come to a strange and sudden end after 255 boards have been cleared or 255 turns have been earned. If a game does something strange (like the Pac-Man split screen) after 255 boards, it is usually a consequence of the byte rollover and should not be mistaken for an intentional trick by the designer.
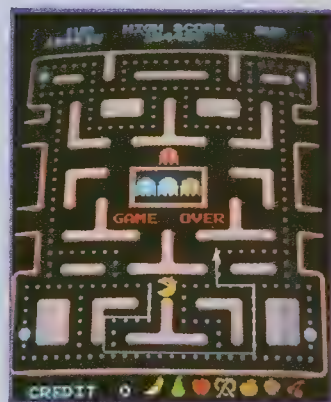
This pattern allows Ms. Pac-Man to go through the blue monster.

MS. PAC-MAN

To prevent players from using patterns, two of the monsters in Ms. Pac-Man — the red and pink monsters — follow random paths when they first come out. The blue and orange monsters, however, always follow the

same path up until the first reverse. Because of this, patterns will work for either of these monsters, although the red or pink monster may randomly move in your way.

An entertaining pattern for the blue monster is shown above. It will cause Ms. Pac-Man to go right through the monster at point A, after which you can turn either right or left (depending on the position of the other monsters) and continue clearing the board. Be prepared to abandon the pattern at any point if one of the two random monsters moves into your path. This pattern only works on the Strawberry (second) board.

Although tight, it is possible to squeeze through the gap.

JOUST LEDGE GAP
The lower right ledge in Joust is really two ledges at different levels with a small gap in between (see the picture above). It is possible to fly your Ostrich through that gap, even though it looks too narrow.

Start out by flying to the left over the lower level (to the right of the gap) with the bottom of your Ostrich just skimming the surface of the ledge. If your knees are dragging on the ledge, you'll squeeze through the gap and appear below the ledge. Note that you can not walk through the gap, because the Ostrich is

too tall when its legs are extended.

Eggs can fit through the gap also, if you throw one up from below. Either hit a buzzard just below the gap to throw an egg up through it, or bounce an egg off the center ledge into the gap. If you do this correctly, the egg will be impossible to pick up because it is under the overhang of the upper ledge; wait for the egg to hatch, and the man will stand up tall enough for you to reach him.

JOUST PHANTOM ENERGIZER
This trick doesn't help your score, but it leaves a platform on the screen during the waves that have no upper ledge in Joust. To do the trick correctly, you must be playing a two-player game, and you must set it up on a wave just before the upper ledge disappears, such as the fifth wave or the Egg wave.

First, you must clear all the opponents in the wave except one. Then hit the remaining buzzard at a point that will leave the egg in the middle of the bottom ledge. Player 1 should stand on the lower energizing platform while Player 2 jumps in the lava. Where Player 1 reappears determines if this trick will work.

If Player 2 is on the energizing platform at the top of the screen, it is possible to make the platform disappear, leaving just a white cloud floating through space. To do so, Player 1 must grab the egg on the bottom ledge. This will end the wave and the upper ledge will disappear; the phantom platform remains.

For the trick to be successful, Player 2 must reappear on the top energizing platform after jumping into the lava. If he reappears on one of the others, you'll have to go to the next wave before that platform disappears and then try again. (Since this costs Player 2 a turn each time, it's always better for Player 1 to do the trick.)

DIG DUG
Here's a trick offered as an alternative to "playing" Dig Dug. Kill all the monsters except one. Stop the last monster two spaces under a rock and hold him there by pumping him just enough to freeze him. Then dig up under the rock, pumping the monster as you pass through him. When you hit the rock, reverse back down inside the monster and turn away. Quickly turn around and explode the monster just before the rock hits him. In effect, the monster is killed twice. The game will not advance to the next round, leaving Dig Dug all alone on the screen and free to dig patterns or just sit still and take a break. When you want to advance to the next round, either get the fruit or drop a rock on lonely old Dig Dug.

QIX SPARK LOOP
There are many tricks for avoiding the sparks in Qix, but the one shown below is the best we've found. By building this figure at the center of the top edge of the screen, you can trap all of the sparks in a small loop.

Start out by moving to the top of the screen immediately after appearing on the screen. You must jump over a spark on the

way to the top, but don't draw any more than is absolutely necessary to get past it.
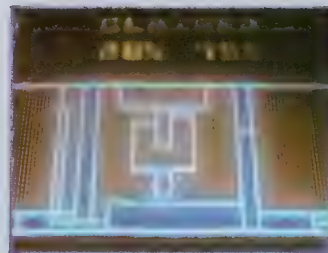

By using this pattern, sparks will be trapped, allowing time to trap the Qix in the lower part of the screen.

Once you've reached the top, draw three blocks to form the sides of a rectangle with the top edge as the fourth side. Make the block on the side opposite where you jumped the spark a little larger so that both sparks will get back to the top at the same time. When both sparks are inside the rectangle, close off that area and move to the bottom of the screen. If the trap is set up properly, all additional sparks will go directly into it and you can take as much time as you want to trap the Qix in the lower part of the screen. Just be careful about moving too high up the screen; if you move above the bottom edge of the trap, the sparks will come out of the loop.

ROBOTRON
The Robotron tank wave is one of the most difficult tests of skill yet in an arcade game. Intense and complicated, it can drain the stamina of even the best players.

The trick explained here won't help you get through a tank wave, but it will give you a chance to relax for a while at the end of the wave.
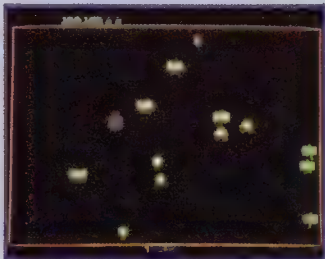
Relaxing during a Robotron tank wave.

A tank's most powerful weapon is its ricocheting shots, which bounce off two walls before disappearing. If the tanks stop firing, the tank wave suddenly becomes very relaxed; the tanks themselves are not aggressive, and you can survive for a long time by moving around just enough to avoid them.

To prevent the tanks from firing, you must make them "use up" all of their shots. If you can dodge 20 tank shots (without shooting them), the tanks will stop firing. Needless to say, this is easiest to do when there is only one tank left.

The reason this trick works is very simple. To prevent the tank wave from getting too crowded, Robotron's designers set a limit of 20 tank-bullets on the screen at one time. Each time a tank shoots, that bullet is added to the total, and each time you shoot one of the tanks' bullets, that bullet is subtracted from the running total. But the bullets that disappear after two bounces are not subtracted from the total, so the game program always thinks that those bullets are still active. After 20 bullets have disappeared, the program will think that all 20 of those bullets are still on the screen, and will stop

the tanks from firing until you eliminate some of the bullets. But you can't eliminate the bullets — because they're already gone — so the tanks will never start firing again (unless you lose a turn, which causes all of the counters to start over).


Outsmarting the Robotron Brains.

ROBOTRON DUMB BRAINS
In the picture above, the Brain will never come down to the player pushed against the wall. Instead, it simply walks in place, desperately trying to align with the player before coming straight down. By firing straight up, you can shoot most of the cruise missiles before they reach you, although occasionally one will get around and hit you from behind. This trick will work with one or many brains.

To make a Brain act this dumb, you must wait for him to be tracking you from above and then walk to the right towards the wall. When you get close to the wall, move down diagonally until you hit the wall and then begin firing. The Brain will move against the wall above you and walk in place with his forehead about 1/8" away from it. Almost all of the cruise missiles will hit your shots, although it is possible for one to move away from the wall and reach you.
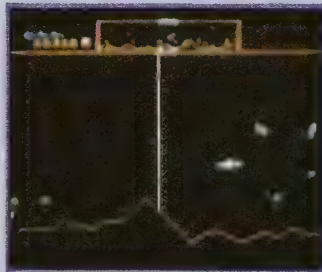
The Mutant reverse line.

The Swarmer reverse line.

DEFENDER REVERSE LINES
There are many subtle tricks that can help you in Defender, and one of the most useful of these is using the reverse lines. The reverse lines are places in the planet's terrain that Mutants or Swarmers can't pass through. There is one reverse line for Mutants and one reverse line for Swarmers, as shown above.

When you cross one of the reverse lines all of the affected opponents will turn around and go in the opposite direction to reach you, because they can't "see" through the line. One of the best uses of the reverse lines is simply to cross them to drive away Mutants or Swarmers and buy a little time for dealing with other enemies.

Although the reverse lines are in the same location in free space as in normal play, they're easy to lose track of without the terrain to guide you. If you aren't sure where the

reverse lines are, just move in one direction until the Mutants or Swarmers reverse; this tells you that you've just crossed the line.

Set down ten Humanoids at once and action will freeze.

DEFENDER FROZEN SCREEN
Another good Defender trick is to freeze the screen by setting down all ten Humanoids at once. Once the screen is frozen, none of the elements of the game will move until you hit the thrust button. You can pound on the other buttons all you want, but none of them have any effect.

This trick works best on the first wave. Wait for the Landers to pick up Humanoids, and then shoot the Landers and catch the Humanoids without setting any of them down. After you have caught all ten Humanoids, find a clear part of the screen and coast to a stop. When your ship has completely stopped moving, pull straight down on the altitude lever. This will set all ten Humanoids down directly on top of each other.

You can tell immediately whether the trick has worked, by watching the red, blue, and yellow 500's that appear next to the Humanoids. If they are changing color or moving, then the trick

didn't work and the opponents will continue moving. But if the 500's are not moving, the game is frozen and nothing will move until you hit the thrust button.
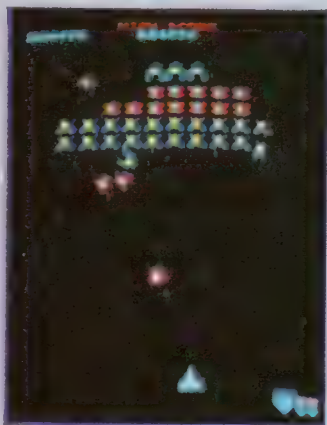
Galaga bugs that can't shoot aren't much of a threat.

DISARM THE BUGS
In the picture above, none of the Galaga bugs are firing. This isn't just because we took the picture during a break in the action; the Galaga bugs can be made to stop firing for an entire game by the following trick.

Shoot all of the bugs in a wave except for one of the two blue/yellow ones on the far left. You can leave either one or even both, but it is easier to leave just one, because your next task is to avoid the bugs' fire for up to 20 minutes without shooting them.

After you have waited long enough, (anywhere from about five to 20 minutes—we don't know why it isn't always the same), the bug will stop firing. After he has passed through the top of the screen four times without firing, you can shoot him. From that point on, none of the bugs will fire at you.

Avoiding the bug's shots

for 20 minutes can be difficult. One good technique is to stay in the far right corner most of the time. The only shot that can hit you there is one released by the bug while he is off the screen momentarily when he wraps around. If you do get killed, you can just pick up where you left off.

After the bugs have stopped firing, the game is very easy. If you are careful to avoid the bugs that scroll off the bottom of the screen, you should be able to last indefinitely.

If you're in a two-player game, the first player can do the trick and bugs will not fire on the second player's turns either. But after the first player has lost his last turn, the second player's bugs will resume firing.


Xevious designer programs himself a credit.

XEVIOUS DESIGNER'S NAME
Because most game manufacturers don't give their designers name credit, a game designer will often include in the program a trick for generating his or her name. This provides permanent proof of who programmed the game.

The designer of Xevious included a trick for gen-

erating his name right at the beginning of the game. As soon as your Solvalou appears, move to the far right edge of the screen and begin bombing constantly. Continue bombing until the first set of attacking rings is very close to you, and then shoot the rings. The message shown in the picture above will appear on the screen.
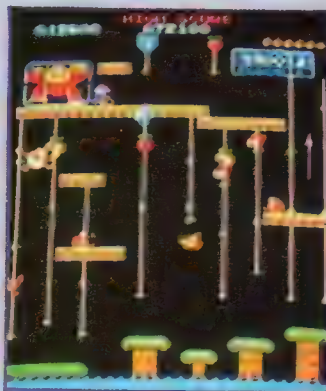
Action too fast? Slow it down with this trick.

DONKEY KONG, JR.
This trick will not help your score, but it has a comical effect. On the first board of Donkey Kong, Jr., climb to the top of the two vines at the far right edge of the screen. Then, with one hand on each vine, push up against the top of the screen and hold the joystick forward. All of the action on the screen will slow to a snail's pace until you release the joystick.

DONKEY KONG, JR. INFINITE PLAY
This trick allows Player 1 to earn an infinite number of extra turns, at the expense of Player 2's game. Player 1 just plays a normal game, but each time Player 2 has a turn he must perform a trick that costs him that turn and earns each player an extra turn. If Player 2 can do the trick every time,

Player 1 will always have extra turns to play with and Player 2 will always have at least one turn left to perform the trick the next time around.
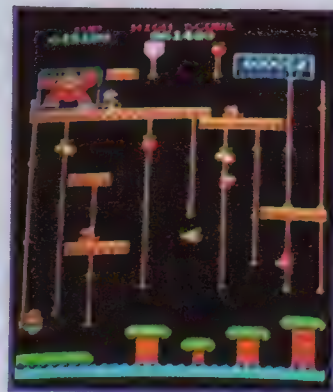
With proper execution, Donkey Kong, Jr. can be played forever.

At the beginning of the first screen, Junior appears on a platform in the lower left corner of the screen, as shown above. Walk to the right edge of this platform, and move as far right as possible without falling off. Only Junior's heel should still be on the platform.

Wait at the edge of the platform and watch for a blue Snapjaw to come down the first vine to the right. As soon as the Snapjaw leaves the end of the vine to fall in the water, jump toward him. You should hit the Snapjaw at the same time it hits the water.

If you timed your jump correctly, your turn will be over but both players will be awarded an extra turn. You can then play normally (as Player 1) until Player 2's turn comes up again and you must repeat the trick.

DIFFICULTY SETTINGS

All arcade video games may be created equal, but they don't necessarily stay that way. Arcade owners have the power to change the machines to prevent individual players from tying up a machine for too long. The chart on the right shows you the possible options available to arcade owners for all of the games included in this book. We also show you the factory recommended settings for these games.

The number of plays is simply the number of turns that you receive at the beginning of the game. As you can see in the chart, most games are set for three turns.

The bonus level is the score needed to earn an extra turn, followed by the number of points necessary for each additional turn. If, for example, the bonus level is 10,000/25,000, you will earn an extra turn at 10,000 points and then every 25,000 points thereafter.

The last two columns show difficulty level options. In general, the difficulty level determines the pace of the action by increasing the speed of opponents and the aggressiveness of their behavior.

GAME	NUMBER OF PLAYS	
	POSSIBLE	FACTORY SETTING
DIG DUG	1, 2, 3 or 5	3
DONKEY KONG, JR.	3, 4, 5 or 6	3
GALAGA	3, 4, 5 or 6	3
JOUST	1 to 99	4
MS. PAC-MAN	3, 4 or 5	3
Q*BERT	3, 4 or 5	3
ROBOTRON	1 to 20	3
SINISTAR	1 to 99	3
TRON	1 to 9	3
XEVIOUS	1, 2, 3 or 5	3
FOOD FIGHT	1 to 5	3
FRONT LINE	3 to 6	3
POLE POSITION	3 or 4 laps	3-upright 4-sitdown
POPEYE	1 to 4	3
TIME PILOT	3, 4 or 5	3
ZAXXON	3, 4 or 5	5
ZOOKEEPER	1 to 99	3

POINTS NEEDED FOR BONUS PLAY		LEVELS OF DIFFICULTY	
POSSIBLE	**FACTORY SETTING**	**POSSIBLE**	**FACTORY SETTING**
10,000/40,000, 10,000/50,000 20,000/60,000 or 20,000/70,000	10,000/40,000	A, B, C or D	B
10,000, 15,000 20,000 or 25,000	10,000	———	———
10,000, 15,000 20,000 or 30,000	10,000	Easy, Medium or Hard	Medium
1,000 to 99,000	20,000	0 to 9	4
10,000, 15,000 or 25,000	10,000	———	———
6,000 to 11,000 and 12,000 to 17,000	8,000 and 14,000	Normal or Hard	Normal
20,000, 25,000 or 50,000	25,000	1 to 10	2
1,000 to 99,000	30,000	1 to 9	5
1,000 to 99,000	10,000	1 to 9	5
10,000/40,000, 10,000/50,000 20,000/50,000, 20,000/70,000 or 20,000/80,000	20,000/50,000	Easy, Average, Hard or Expert	Average
5,000 to 1,000,000	25,000/100,000	1 to 5	2
10,000, 20,000, 30,000 or 50,000	10,000	———	———
90 to 120 seconds	75 seconds	A to H	C
40,000, 60,000 or 80,000	40,000	0 to 3	0
10,000/50,000 or 20,000/60,000	20,000/60,000	Very Easy, Easy, Difficult or Very Difficult	Difficult
10,000, 20,000 30,000 or 40,000	20,000	———	———
Escalator Screen	Escalator Screen	Novice or Expert 1 to 99	Novice 36

Many of the strategies in this book go far beyond what is usually found in books on playing video games. The location of the hidden targets in Xevious and the hiding spots for Ms. Pac-Man are good examples of this; this information will come as a surprise to even experienced players of these games.

All of these advanced tricks and strategies were provided by Tad Perry and Eric Ginner, our technical consultants. Both are contributing editors to JoyStik®, the arcade game strategy magazine, and they both have won contests and tournaments on many different games. We appreciate their help.

TAD PERRY

ERIC GINNER

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FOOD FIGHT

TIME PILOT

ZOOKEEPER

MY HERO
5,000
2,500

POLE POSITION

ZAXXON

GALAGA

FRONT LINE

POPEYE